

ANNALS OF OTOLOGY, RHINOLOGY AND LARYNGOLOGY.

VOL. VII.

AUGUST, 1898.

No. 3.

A REVIEW OF THE PATHOLOGICAL CONDITIONS
AFFECTING THE LINGUAL TONSIL.*

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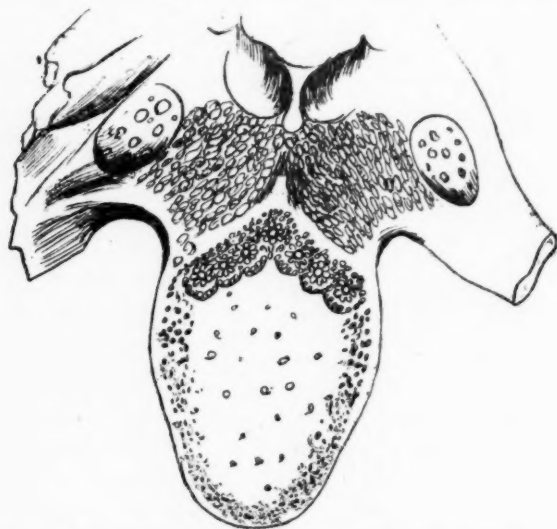
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The study of the lingual tonsil is one of the newer paths in diseases of the throat. In 1877 Heyman described this organ, if we may so term it, and at the same time Stoerck called attention to hypertrophy of the lymphoid tissue at the base of the tongue as a cause of irritation of the epiglottis. In 1880 Lennox Browne made a communication to the Milan Congress of Laryngology on this subject, which is further treated in the second edition of his book. In 1886 Swain described "hypertrophy of the papillæ, or lymphoid tissue at the base of the tongue." In September, 1887, Lennox Browne brought the matter to the attention of the Philadelphia County Medical Society. With the prestige of such an introduction, this region became more carefully studied, and the result has been

*Read before the Western Ophthalmologic and Oto-Laryngologic Association, Chicago, April, 1898.

numerous papers in the past ten years on the various pathological conditions found in this locality.

Somers describes this organ as the anterior portion of the oro-pharyngeal lymphoid ring, lying behind the circumvallate papillæ, in the pre-epiglottic space, continued upward laterally to almost merge into the faucial lymph-adenoid tissue. The lingual tonsil, as we now call this mass of tissue, is divided into two lobes, or portions, by the median glosso-epiglottic ligament, and lies flat on the muscles of the tongue. It is composed of separate follicles,



not bound in a smooth mass like the faucial tonsils, and varies in thickness from $\frac{1}{8}$ to $\frac{3}{8}$ of an inch. The accompanying sketch, copied from Morris' anatomy, is the best illustration of this region, which I have seen.

The blood and nerve supply of this region is abundant, in fact Swain says the tissue is so vascular as to be almost erectile, and the abundant nerve supply explains the neuroses and reflex symptoms to which diseases affecting this part may give rise.

We must remain in some doubt as to the function of this tissue, as we are of its kindred neighbors, but Somers suggests the following:

(a). It acts as a pad to prevent the lodgement of food in the pre-epiglottic space.

(b). It serves, by virtue of some mucous glands, to moisten food and lubricate the region.

(c). It also moistens the circumvallate papillæ and thus assists in the sense of taste.

In addition to these, there is doubtless some part which it, in common with other lymphoid tissues of this locality, plays in the physiology of the throat, and of which we, as yet, have no accurate knowledge, except that, in some measure, it sacrifices itself in the effort to prevent the absorption of deleterious products, from various sources, into the lymphatic system, just as lymphatic glands elsewhere in the body do.

Now, that no examination of the pharynx or larynx is complete till this region is inspected, we know that, as Lewis says, "derangements of the lingual tonsil are not exceptional, but very common." In one hundred consecutive patients with naso-pharyngeal symptoms, Scheppegrell found this organ diseased in eight, and Arrowsmith found it fifty-six times in two thousand cases, examined in Jonathan Wright's clinic at the Brooklyn Eye and Ear Hospital.

The lingual tonsil does not attain appreciable size till the 6th or 7th year, hence all diseases of it are seen at a later period than those affecting the other oro-pharyngeal lymphoid tissue, a point which will be referred to in detail later.

In presenting a review of the pathological conditions found in this organ, I find it convenient to group them briefly as follows:

1. Acute inflammation, including abscess.
2. Chronic inflammation, including hypertrophy and varix.
3. Specific inflammations.
4. Neoplasms.

Before going into separate consideration of these processes, it might be well to call attention to the similarity between the lingual tonsil and its faucial neighbor. Keeping in mind that the former is a simple and the latter a compound follicular gland, the changes are analogous,

presenting much the same clinical, and almost identical histological, pictures.

Acute inflammation of the lingual tonsils is not often mentioned, probably because, as Swain suggests, the condition is overlooked, and the symptoms due to it ascribed to something else. Milligan has reported two cases under the head of "Angina Epiglottidea Anterior," one in a girl, the other in a male adult. They presented symptoms of acute faucial inflammation, with edema of the epiglottis, unusually severe dysphagia, and marked constitutional disturbance. Swain emphasizes cough as a symptom, which he says is present from the start, and may persist for weeks. I have recently noted this symptom in a case in which, though the larynx and bronchi were much involved, the cough was greatly in excess of what usually accompanies these conditions.

Villecourt's case is extensively quoted and is quite unique. A woman of thirty was taken with acute lingual tonsillitis, inspiratory dyspnoea and cyanosis. There was a feeling as if a foreign body was in the throat, inclination to swallow, sialorrhoea, heaviness and difficult motion of the right arm, obtunded cutaneous sensibility and diminished electrical reaction. Applications of chloride of iron to the tonsil relieved the local by the third, and general symptoms by the eighth day. Seifert has seen a somewhat similar case, and Polyak one case of acute follicular inflammation, with edema of the glottis, and the general symptoms that accompany faucial tonsillitis. The inflammation may be follicular or perifollicular, the follicular being, as in the faucial type, accompanied by more marked constitutional symptoms.

The causes of acute inflammation of the lingual tonsils are the same as those of the faucial. Exposure to cold, possibly contagion, and a rheumatic diathesis are probably the most potent. One of Milligan's cases was thought to be miasmatic from defective sewerage.

The treatment consists of hot applications, steam inhalations, demulcent drinks, and astringents in solution or powder. Swain recommends a poultice the first night followed by sucking ice, with a gargle every two or three hours of hot milk and water if the trouble advances, fol-

lowing this by an alkaline drink of chlorate of potash and borax, and a cold alkaline spray between times. When cough comes on, or in phlegmonous types, he uses steam inhalations early. Locally he applies boro-glyceride, insufflates a powder of tannin and morphine containing $2\frac{1}{2}$ per cent. of the latter, and finishes with an oily spray. Scarification of the tonsil and of the epiglottis is often necessary, and rarely tracheotomy is demanded on account of the edema of the glottis.

Chloride of iron has been mentioned. In follicular forms, emptying the follicles is of distinct advantage while in all forms systemic remedies preceded by a purgative should be considered, especially salol or other antirheumatics where this diathesis exists.

It is a short step from acute inflammation to pus formation. This condition may also be overlooked, though not apt to be if the region is routinely inspected. Ruault reports six cases, four of which were unilateral, and emphasizes the fact that there is no swelling of the neck or cervical glands. His treatment consists in deep scarifications. Mounier recommends that the incision be made with a galvano-cautery knife to avoid bleeding. In Swain's report, from which I have already borrowed so freely, he cites the case of a woman of 35, who had acute lingual tonsillitis following faucial tonsillitis, and going on to abscess. The abscess did not form in a recognizable degree till the 20th day, and pointed externally over the cornu of the hyoid bone.

Chronic inflammation is the pathological condition most frequently encountered in the lingual tonsil, and shows itself in the production of an hypertrophy or varix, and frequently the two combined.

Hypertrophy, or enlargement of the lingual tonsil, acts mechanically to cause symptoms of its presence, by contact with neighboring parts, particularly the epiglottis. Delavan says that "contact between the tip of the epiglottis and the base of the tongue without undue antero-posterior folding of the epiglottis may be taken as an indication of hypertrophy of the lymphoid tissue." That is to say, there is normally a space between the two. The condition can only be diagnosed with a mirror, since

rarely is the hypertrophy large enough to be seen directly, though a case of Thrasher's, mentioned by Bowen, in which the tumor attained the size of a walnut, was doubtless an exception to this rule, and in a case of my own, in a mulatto woman, I not only saw the growths without instrumental aid, but amputated them with a straight tonsillotome.

What was said in regard to the age at which affections of this organ usually appear is especially true of hypertrophy. Clark puts it at from 18 to 35. Arrowsmith's 58 cases were as follows: 12-20, 8; 20-30, 27; 30-40, 10; 40-50, 9; over 50, 4. McBride mentioned a case in which he found hypertrophy in a child of seven, and Bosworth thinks the process begins early, and the symptoms appear late.

As stated, varix is usually associated with hypertrophy. In most cases the veins on the side of the tongue in front of the lingual tonsils are enlarged, though Foster's case presented enlarged veins clear across the base of the tongue. This condition varies from simple enlargement to marked tortuosity, with bluish vascular dilatations as large as a No. 8 buckshot. The specific symptoms of this condition are hemorrhage and tenesmus.

Considering these two conditions together then it is in order to speak of the causes leading to them.

Age had been mentioned, most cases being seen in the third decade. Sex is also a factor, most observers giving the preponderance to females, except Seifert, who in 106 cases, found 58 men and 48 women. Of Arrowsmith's 56 cases 50 were women, and Quinlan estimates that 66 per cent. of cases are in women. So far my own cases have been equally divided as to sex.

Scanes Spicer attributes many cases to absorption of perverted secretions from the nose and throat, hence naso-pharyngeal irritations and infectious diseases with naso-pharyngeal manifestations (as diphtheria and scarlatina) are causal factors. Constitutional diseases, such as syphilis, scrofula, rheumatism and possibly tuberculosis are at times apparently responsible for the hypertrophy. Irregular menstruation, uterine disorders, and the menopause are probably responsible for the preponderance

of females affected. I was called some miles out in the country last spring to see a girl with dysmenorrhea and symptoms of acute enlargement of the lingual tonsil attending each menstrual period, becoming, on this particular occasion, quite alarming.

Ruault found buccal and dental lesions in 35 of 120 cases, and thinks that these conditions are often a cause, and naso-pharyngeal irritations are not.

Causes acting directly on the tissue are highly seasoned articles of food, alcohol and tobacco, the latter being given prominent places as causal factors by Lennox Browne. Exposure, use of the voice (hence singers according to Roy, and in the same way cornet playing in one of my cases) all play their part. Lewis finds the enlargement frequently in cases of goitre, and causing characteristic symptoms, an observation which Bowen failed to substantiate in an examination of six cases of goitre.

Remotely acting factors are general or local vasomotor paresis, hepatic congestion or cirrhosis, constipation, indigestion and cardiac disorders, causing what Dayton calls a "general varicose diathesis," all of which would be especially potent in making the varix relatively prominent.

The usual symptoms of this condition are as follows:

- (1). A sensation of a foreign body in the throat.
- (2). A feeling of constriction at the upper border of the thyroid cartilage.
- (3). Reflex cough.
- (4). Constant and ineffectual attempts to clear the throat.
- (5). Quick laryngeal fatigue.
- (6). Hemorrhage.

The sensation of a foreign body may come on suddenly after a meal or may be of more gradual development. It is probably the most constant, and sometimes the only symptom, and is often accompanied by a pricking sensation. A real foreign body may be permitted to enter the larynx from disturbance of the motion of the epiglottis and give rise to choking.

Of the sense of constriction at the upper border of the thyroid, not much can be said except that it is present.

Especially in neurotic patients will this be exaggerated into globus hystericus, dyspnœa, choking, etc. This was noted (dyspnœa) in the mulatto woman whose tonsils I removed with an Ermold tonsillotome, and was also seen by Arrowsmith in some of his cases.

The constant desire to clear the throat is graphically described by Lennox Browne as "faucial and pharyngeal tenesmus," that is, "a constant inclination to void, by hawking or swallowing, a real or imaginary substance from the pharyngeal portion of the alimentary tract, usually accompanied by discomfort, and sometimes by actual pain and resulting in the expectoration of a little mucous only, which occasionally, and especially on rising from sleep, is tinged by the admixture of a small quantity of blood, analogous to tenesmus of the bowel, and many patients with rectal hemorrhoids have the above symptoms from an homologous condition of the vessels of the throat, hence *Throat Piles*." Tenesmus, unless in the presence of varix, is rare.

Laryngeal fatigue is noticed most in public speakers and singers. Mulhall thinks "the affection is especially likely to cause symptoms in singers with high soprano voices, for the reason that the higher the note sung the more erect the epiglottis. Its erection is hindered by these hypertrophies and the notes most valuable to the soprano are either not possible or else their quality is destroyed." Aside from this mechanical interference, quick fatigue and hoarseness from laryngeal irritation is common. I believe most cases of so called "delicate throat" and recurrent laryngitis depend upon this condition.

Hemorrhage is a symptom of which we should always bear lingual varix in mind as a possible cause on account of the usual dread significance of "spitting blood." The dilated vessels are uncovered and easily ruptured. Doubtless all of us have seen such cases. In my cornet player this was a prominent symptom. Joal saw three cases in otherwise healthy people, and Foster has reported in full a recent case in *The Laryngoscope*, with which you are all no doubt familiar. In his case the veins were enlarged all across the base of the tongue, while in all of my cases

it has been the lateral veins only which became affected. In cases of recent hemorrhage the point of rupture can usually be seen with the mirror.

Less usual symptoms are laryngeal vertigo, as in a case of Gleitsmann's cured by treatment of the lingual tonsil; esophageal spasm, cured in Joal's case by treatment of the lingual tonsil; submaxillary fullness, thought by Grant to be caused by occlusion of the lingual veins by pressure; asthma and croupy spells referred to by Dayton, and especially the case of nocturnal asthma which Casadesus relieved by treating the lingual tonsil.

The treatment of hypertrophy and varix in this locality is both general and local. In addition to removal of any recognizable cause as far as possible and the correction of any constitutional dyscrasia, if possible, a general tonic treatment is advisable. Delavan gets good results from mixed treatment even in non-specific cases. The frequent associated uterine disorders makes us often need the aid of our gynecological brother.

Local treatment consists in removal of the offending mass by surgical means, or its gradual reduction by the application of such substances as we know to possess this power.

Various tonsillotomes with curved handles have been devised by Roe and Myles, and with these ablation of the mass can be accomplished. I have said that this can sometimes be done with a straight instrument. These methods are not attended by any hemorrhage. The snare, hot or cold, has its advocates, but is not so easy to manipulate. The method which enlists most followers, is the destruction by the galvano cautery. A curved electrode guided to the cocaineized area by the aid of the mirror, and contact then made, gives a thorough and painless method of treatment which I have found very efficacious. The ordinary platinum point suffices, though Scanes Spicer prefers the porcelain core. Several applications are necessary, the object being not to excite a disagreeable degree of reaction by too zealous treatment.

Winckler has devised a curved currette, but I think the tissue is too tough to permit such an instrument to be used to advantage.

Of medicinal applications, iodine and glycerine (Churchill's tincture) is the most generally used. Silver solutions, gr. x to gr. xx to the ounce, are favored by Lewis, Kronenberg and Somers. Ruault uses mentholated oil, in addition to iodine to the gums. Lugol's solution may replace Churchill's tincture, while Kronenberg uses resorcin, and cauterizes with chromic acid, which I have found to be distinctly inferior to the galvano cautery. Recurrences, which sometimes occur under medical treatment, are to be combatted by iodine.

The *specific inflammations* to be considered are tuberculosis and syphilis. I have not seen, nor can I find in literature any case of tuberculosis affecting this region, though I have examined carefully for it in several cases of laryngeal phthisis..

Syphilis is not so rare. One case of primary syphilis is recorded by F. Schiffrers, the patient being a man of twenty-seven with a chancre on the left lingual tonsil, 5 x 6 m.m. There was dysphagia and enlargement of the cervical lymphatics.

Later in the disease the manifestations are rather common. From a study of the lingual tonsil in seventy-one cases of syphilis, Seifert thinks it is usually affected when there is pharyngeal involvement. He saw no chancres. Of the seventy-one cases, ten were in the tertiary stage, and of these ten the lingual tonsil was hypertrophied in two and ulcerated in one. In all three there were other throat manifestations, and one of the three was a case of hereditary syphilis. In 61 cases of secondary syphilis he saw twenty cases of involvement of the lingual tonsil, in only one of which was there absence of other throat lesions, though several of the cases had the usual faucial symptoms without involvement of the lingual tonsil. I have recently seen a male adult with late syphilis and ulcerations on the fauces and pharynx and ultimately a sloughing ulcer on the left, and a mucous plaque on the right, tonsil (lingual). The symptoms were rather mild in comparison with the extent of the lesion. In addition to the internal treatment, of which I deem iodide of potash the principal part, applications of acid nitrate of mercury or lactic acid are the most efficient means of local treatment.

Very few *new growths* have been observed in the lingual tonsil. Rueda reports a retention cyst in a woman of 25, in whom the principal symptom was the feeling as of a foreign body in the throat. This he opened and destroyed by means of the galvano cautery.

Onodi reported a fibrosarcoma in a girl of seventeen, the diagnosis being made by microscopical examination, but no operation was undertaken. He found two similar cases in French literature. Jonathan Wright presented a patient to the New York academy of medicine suffering from an angioma of the lingual tonsil, accompanied by naevi on the face, and preceded, twenty years before, by a mass on the gum, which was cauterized. He had not operated on this patient, but expected to do so with a Paquelin cautery. Gleitsmann finds injections of chloride of iron a very satisfactory form of treatment for the vascular growths.

REFERENCES.

1. Casadesus, Atlanta Med. and Sur. Journal, Oct., 1894.
2. Villecourt, Gazette des Hopitaux, Jan. 9, 1894.
3. Seifert, Berlin Klin. Wochen., 1887.
4. Rueda, Archiv. Internacion. de Laryng., etc., Nov., 1893.
5. Onodi, Bristol Medico-Chirug. Journal, Oct. 15, 1893.
6. Joal, Revue de Laryngologie, etc., June 1, 1893.
7. Schiffers, Archiv. Internat. de Laryngologie, etc., Nov. 30, 1894.
8. Seifert, Munchener Medicin. Wochen., Feb. 7, 1893.
9. H. L. Swain, N. Y. Medical Journal, July 25, 1896.
10. Polyak, Revue de Laryngologie, etc., Feb. 15, 1895.
11. Milligan, Journal of Laryngology, etc., Sept., 1897.
12. Ruault, Journal of Laryngology, etc., March, 1892.
13. Mounier, Annales des Maladies des L'oreill., etc., June, 1894.
14. Dayton, Annals of Ophthalmology and Otology, Oct., 1892.
15. Arrowsmith, N. Y. Medical Journal, Aug. 28, 1897.
16. Lewis, The Laryngoscope, July, 1896.
17. Foster, The Laryngoscope, Oct., 1896.
18. Tompkins, Virginia Medical Monthly.
19. Dunbar Roy, Medical News, Oct. 26, 1895.
20. Ruault, Revue de Laryngologie, etc., No. 11, 1895.
21. Watson Williams, Treat's Medical Annual, 1892.
22. Delavan, Annual of the Universal Medical Science, 1888.
23. Seanes Spicer, Lancet, Oct. 27, 1888.
24. Gleitsmann, Medical Monats., Oct., 1889.
25. Lennox Browne, British Medical Journal, Sept. 13, 1890.

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26. Joal, *Revue de Laryngologie*, etc., July 15, 1894. Same Aug. 15, 1890.
27. Hamilton, *Journal of Laryngologie*, etc., Nov., 1893.
28. Bowen, *N. Y. Medical Journal*, Dec. 25, 1897.
29. Clark, *Philadelphia Polyclinic*, March 28, 1896.
30. Robertson, *Clinical Journal*, 1894.
31. McBride, *Edinburgh Medical Journal*, Sept., 1897.
32. Gleitsmann, *Medical Record*, Dec. 17, 1887.
33. Winekler, *Archiv. fur Laryngologie*, B. 3, H 1, 2, 1895.
34. Kronenburg, *Berlin Klinik*, No. 77, 1896.
35. Jonathan Wright, *Laryngoscope*, March, 1897.
36. Francis Quinlan, *Laryngoscope*, March, 1897.
37. A. Rupps, *Laryngoscope*, March, 1897.
38. Scheppegegrell, *Med. News*, Oct. 19, 1892.
39. Somers, *Laryngoscope*, March, 1897.
40. Barnhill, *Annals of Otology, Rhinology and Laryngology*, May, 1897.
41. Lennox Browne, *Treat's Medical Annal*, 1891.
42. Mulhall, *Annals of Ophthalmology and Otology*, April, 1892.

THE AFTER TREATMENT OF RESTORED DEFLECTED NASAL SEPTUM.

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The subject of this paper has been suggested to me on account of the fact that in most of the papers written upon operative work upon the deflected septum, and in discussions following these papers, the period for the wearing of the splint has differed so from my later experience in this work that I think it well to offer some suggestions with regard to this subject. In septal work a great deal depends upon the after treatment of the case, as regards the patient's comfort and the ultimate success of the operation.

One must conclude from the papers written upon this subject, and the discussions thereon, that this is an operation of extreme simplicity, with the evident absence of discomfort to the patient; with lack of inflammatory reaction; with the ease with which the splint is removed and reintroduced, and the absence of annoying complications. Operators who have had much experience in this work, I am sure, will agree with me that in 90 per cent. of these cases the above stated deductions do not hold good. No one can deny the fact that the wearing of a foreign body within the nasal cavity, which is required to fit snugly, producing slight pressure, is attended with some pain. The pain is greatest during the first week, and becomes less as the wearing is prolonged, but is not absolutely relieved until the foreign body, producing pressure, is removed. Nor can the fact be denied that such a body as a splint of hard rubber placed within the nasal cavity will produce temperature and inflammatory reaction. About the edges of such a foreign body, especially when placed in such a vascular organ as the nasal cavity, we are apt to, and do have exuberant growth

of granulation tissue in proportion to the length of time the foreign body is worn.

I have given above three such self-evident propositions that they require no argument to sustain them.

How to lessen the severity of the condition above mentioned will be the purpose of this short paper. Whatever operation is done to relieve a deflected septum, it is necessary that the resilience of the septum should be destroyed and a splint be introduced within the nasal cavity to hold the septum in position until union has taken place and the septum has become fixed in its new position. It has been my experience that if the operation be done well and thoroughly the retention splint is usually only required for a period of about ten days. I have also found that the comfort of the patient is not increased by the removal and re-insertion of the splint during any period of the wearing of the same splint, nor the ultimate result of the operation enhanced thereby.

After an operation upon a deflected septum I consider it sound medical practice to keep my patient abed until he is practically free of fever. He is more comfortable and better protected from unpleasant complications. This period usually averages about four days. I know that some operators do this operation without having temperature, but I have never been so successful in this line and, therefore, prefer to keep my patients quite abed until the temperature period is passed. Irrigation of the nasal cavity with a carbolyzed alkaline solution is resorted to three times daily, and the surgeon dresses the case carefully once a day, removing all crusts that accumulate about and within the splint. General and local treatment is resorted to, so as to make the patient as comfortable as possible. The patient is placed upon a low diet. Formerly I resorted to the method of daily removing the splint, cleansing the cavity and re-introducing the splint. Later, during the past two years, I have not invariably resorted to the removal of the splint until its final withdrawal at the end of ten days.

I know that it is stated that the removal of the splint and the introduction of another is devoid of pain, but such has never been my experience. In some rare instances,

after the second or third withdrawal and insertion, there is no pain, but this has been the exception. In some cases, especially where the deflection involves the osseous structures, which are being well held in position by the primary splint, the removal of the splint occasionally allows one of the fragments to drop back a little into the old position, so that when the attempt is made to re-introduce the clean splint we find not only some difficulty in applying the splint, but often cause the patient hours of exquisite agony. After causing considerable pain to one of my patients, in a case of the type narrated above, I concluded to try the continuous retention of the splint for a period of a week. I felt convinced that the nasal cavity could be kept clean by frequent cleansing, and that by holding the septum immobile for a shorter period more could be accomplished than by the constant meddling over a longer period. With some feelings of anxiety I watched the first case, which progressed unusually favorably. On the seventh day I removed the splint and re-introduced another, which latter was removed on the ninth day. The splint was never re-introduced. The result was perfect.

Since treating the first case with such marked success I have followed the same course in almost all of my subsequent cases, and with the same degree of success. The septum remains absolutely in the same position given it, and shows no more tendency to sag back into the old position than it did when I formerly required my patients to wear the splint for a period of thirty days. Formerly I found that in some of my cases I was terribly annoyed by granulations; in the short period of wearing the splint they are very infrequent, and when occurring never reach sufficient size to require attention. Temperature range is, if anything, less, and of shorter duration than in my former cases. The neuralgic pains, which are present more or less in every case, are about the same whether the splint is worn continuously or changed frequently. Pains of a neuralgic character occasionally cease only with the absolute dispensing with the wearing of the splint; therefore, the relief is somewhat earlier in these cases when the splint is worn ten days than when it is

worn thirty days. The discomfort due to the wearing of the splint is somewhat great, and if this can be reduced, as it can be by lessening the duration of the wearing of the splint and without imperiling the result of the operation, it should be done.

In conclusion, I would state that in all cases of horizontal deflection of the septum, involving either the osseous or cartilaginous septum, or both, and in many of the vertical deflections involving the cartilaginous septum, the result of the operation is as satisfactory with a short continuous wearing of the splint as in a longer period of wearing, attended with frequent changing of the splint, and all discomfort to the patient is markedly lessened by the shorter period of the wearing of the splint.

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OTITIC CEREBELLAR ABSCESS.

DR. PAUL KOCH.

(Continued from Feb. No., 1898.)

Translated and abridged by Drs. H. A. Alderton and J. Ketterle,
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Of a total of 19 cases of dural fistula due to chronic otitis media suppurativa the situation was:

In region of the sulcus sigmoideus, 6 cases (associated with thrombosis of the sinus).

In region of the labyrinth, 6 cases (in two, thrombosis of the sinus petrosus superior).

On the posterior pyramidal surface, 5 cases (in two, thrombosis of the sinus sigmoideus).

Under the superior petrosal sinus, 1 case (associated with thrombosis of the sinus).

Without particular account, 1 case (thrombosis of sigmoid sinus).

Caries and pus-formation of the posterior pyramidal surface lead, in one-half the cases, to phlebitis of the neighboring sinus. The sigmoid is most endangered, and is often involved in caries and inflammation of the sulcus sigmoideus, especially as the inflammation is so close to the sinus wall; with large extra-dural abscesses, inflammation of the sinus wall is easily set up, and especially, as a large number of veins from the mastoid and labyrinth lead to it and thus may assist infection. The superior petrosal sinus is not so often affected, and then only, when the posterior border of the pyramid is the seat of the caries. The sinus petrosus inferior has been affected in only one case, that of Jansen. The sinus phlebitis is oftentimes non-infectious (gutartig). A thrombus forms on the inflamed walls, it undergoes the usual changes, and finally leads to obliteration of the sinus. Generally the surrounding tissues become involved with the thrombus: it becomes purulent or putrid (verjaucht). The wall of the sinus

becomes necrotic in places, or a fistula is formed that generally leads to bone, or at times to brain abscess.

In 52 cases of caries of the posterior cranial fossa are noted:

Cases of Thromboses.

Sigmoid sulcus, 12-9 (of the s. sinus).

Post. Pyramidal Surface, 24-11 (8 of the s. sigmoideus, 2 of the Sup. Petros. sinus, 1 of the Inf. Petros.-sinus).

Post. surface and labyrinth surface, 5-1 (of the sigmoid sinus).

Sulcus and Post. surface, 3-2 (of the sigmoid sinus).

Sulcus and labyrinth surface, 2-1 (of the sigmoid sinus).

Labyrinth surface, 3-1 (of the Sup. Petros. sinus).

Extensive necrosis, 3-2 (of the sigmoid sinus).—52-27.

There to appear with intact, or not particularly described posterior pyramidal surface:

Extradural abscess, 2 cases with 2 thromboses of the S. sigmoid.

Pachymeningitis externa, 5 cases with 5 thromboses (4 of the S. sigmoid, 1 of the S. Sup. Petros.)

Finally isolated, without particular description, 4 thromboses (of the sigmoid sinus).

TOTAL.—Sixty-three cases, with 38 sinus thromboses, of which 33 affected the sinus sigmoideus. Of these 38 thromboses 13 had a non-infectious pathological, more or less organized, and 23 a broken down thrombus, and in two there was no particular account.

In 63 out of 76 cases of chronic otorrhea with cerebellar abscess, there was present on the anterior wall of the posterior cerebral fossa, marked and important pathologic changes, so that we believe that these changes are a necessary and important stage in the growth and development of cerebellar abscess. In 6 cases out of 76, the abscess followed suppuration in the labyrinth, without any microscopic change on the posterior surface of pyramid. As frequently as cerebellar abscess is a sequel to inflammation of the labyrinth, where the posterior wall of the labyrinth protrudes through the posterior surface of the pyramid, so rare is it where the labyrinth capsule remains intact.

A carious process in the middle ear or mastoid naturally may frequently spread in several directions. Thus it can in-

volve the middle as well as the posterior cerebral fossa, and in just as marked a degree. The posterior fossa is often gravely diseased, but there are cases in which the posterior surface of the pyramid was intact, while caries and pachymeningitis externa were present over the tegmen tympani et antri.

In 14 of the 76 cases existed caries and pachymeningitis externa of the middle cranial fossa.

In association with the same process in equal extent in the posterior cranial fossa, 6 cases.

In association with the same process to a much greater extent in the posterior cranial fossa, 4 cases.

With intact posterior pyramidal surface, 4 cases.

It is interesting to compare the situation of the abscess with the situation of the causative disease. For this comparison we can naturally use only small abscesses. This shows that out of 21 median abscesses 12 cases had their origin outside of the sulcus, in that region that borders on the antrum and labyrinth, or through an opening in the posterior surface of pyramid and leading from an inflamed labyrinth; five cases showed posterior surface of pyramid intact, (here, however, the labyrinth had not been examined), but one case showed simply a suppurative otitis media without complications. The remainder of reported cases contained no account of the condition of the temporal bone. Twenty cases of lateral abscess showed 9 to have caries of sulcus, 2 phlebitis of sigmoid sinus (1 having an extra-dural abscess), 5 cases had caries on posterior pyramidal surface, 1 case of intact bone, 1 case of total destruction of the bone, 2 cases, no description.

Resume.—There are two sources for cerebellar abscess of equal importance: (1) The labyrinth, with the neighboring portion of antrum mastoideum. (2) The sulcus and sinus sigmoides. The first usually leads to abscess in the median portion, while the second leads to abscess in the lateral portion of the cerebellum.

Symptomatology.

We speak of three stages of brain abscess: (1) Initial; (2) latent; (3) terminal. All abscesses have these stages. If we see an encapsulated abscess, that has led

to death in a few days, it is evident that the abscess has not existed simply during eight days, since pathologic-anatomic research has shown that several weeks are required to create a well-formed capsule. As the patient experienced no symptoms until a few days before death, we can then account for a latent stage. We must grant an initial stage, inasmuch, as such a sensitive organ as the brain would not put up with strange and pathologic material in its midst, without at first producing some symptoms, at least until it became accustomed to the invading disease. Although the recognition of three stages are desirable in theory, and although they have been observed in traumatic abscesses, we seldom prove their existence in otic abscesses. We cannot say that they do not occur, because, in acute otitis media which leads to abscess, the ear symptoms so overshadow the symptoms of the 1st and 2d stages that we cannot clinically separate them; in chronic otorrhea, which in these cases usually depends on caries and cholesteatoma, we can seldom say whether certain symptoms (dizziness for a few days, headache near diseased ear, and vomiting) are due to a growing abscess or to the ear disease. So it happens we have only three cases in which there was some probability of having differentiated the first and second stages, and one of these cases is very doubtful.

Harrison treated a patient who had recurrent otorrhea, and for several months past had again suffered. At the end of May the man had suddenly severe otalgia, vomiting and otorrhea and felt sick and wretched. After one week he recovered and felt well, but became more and more emaciated, had obstinate constipation and was often restless and delirious. On July 20 the abscess symptoms of the terminal stage appeared. Winter and Deanesly report a case in which the aural condition was uncertain. The patient had temporary headache and vomiting at Christmas, then felt quite well for a week, and the clear abscess symptoms appeared first toward the end of January.

In a case of Macewen's, old otorrhea, the disease began with two days of headache, dizziness, and vomiting, followed by a free interval of six days' duration, and after that the final stage set in with severe otalgia.

The third stage therefore only is of practical value to us. With its beginning the general condition of the patient is pretty well affected. He is weak and miserable, constantly wants to be recumbent, eats little and has some chills. The body temperature acts curiously; a large number of cases showed normal or subnormal temperature; or during the physician's observation (which usually lasted only a few days) the temperature did not rise. Four (4) cases showed a single rapid and momentary rise of temperature. Eight (8) began the third stage with rise in temperature which lasted a few days and then became normal to the end. Nine (9) cases showed a lasting fever, generally slightly remittent; five of these cases had a marked rise in temperature. Therefore we conclude that uncomplicated cerebellar abscess has no temperature or only slight and temporary rise; subnormal temperature more often than a very high rise.

The third stage begins with general brain symptoms: headache, vomiting, dizziness, sleepiness, slow cerebra-tion, pulse slowed, constipation, convulsions, optic neuritis. These symptoms accompany brain abscesses and a long list of other affections.

Even otitis media has not rarely some or other of these symptoms. Are there any symptoms which point to a cerebellar abscess? Headaches are never wanting in the third stage. They are often severe, so that patient groans and cries, holds head between hands, and seeks to avoid every movement. It is usually limited to back of head and neck, but may affect other parts of skull on the side of lesion, and in rare cases on the other side.

In 87 cases we find it reported: Twenty-three times in occiput and nape of neck, 6 times in the brow, 5 times in the occiput and brow together, 3 times in the temple, 4 times in the parietal bone, once in the coronary suture and in one case (of Schwartz's) the headache existed in the beginning on the side of the lesion, and only later went over to the opposite side. It is diffuse but most intense on affected side.

Tenderness on percussion is only once reported; one has rarely used it. Pain on percussion is mentioned only once. Vomiting is a brain symptom, especially present

in disease of the posterior fossa, as it is often found here and is hard to combat. Severe and uncontrollable vomiting was reported in 8 cases, while vomiting was present in 53 cases out of 86.

Dizziness was present in 30 cases out of 86, being severe in 6; 4 cases had severe dizziness and vertigo only in the beginning, losing them latter. Here lateral abscess and purulent sinus thrombus were found in connection with caries and pus in labyrinth. Macewen and Jansen each had a case where dizziness, of varying intensity, accompanied the entire disease. Macewen cleared out a small lateral abscess and a broken down thrombus in sinus sigmoideus and symptoms disappeared. Jansen's had an abscess (size of a hen's egg) with softened surrounding tissue, and caries at sulcus from cholesteatoma. Severe *dizziness* is seldom present in cerebellar abscesses, and its presence points in dubious cases to the labyrinth. *Dizziness and vomiting* are symptoms of many other brain affections, but usually with middle and inner ear disease.

They are valuable as *otic-brain-disease symptoms*, only after we have found, by operative measures, that the labyrinth is intact and can exclude other middle ear diseases. Then will constant dizziness, severe and uncontrollable vomiting be taken as valuable symptoms of cerebellar abscess. Therefore we must guard the value of these symptoms in diagnosis. Opening of the mastoid is a good method of relieving brain and meningeal symptoms; headache, dizziness, vomiting and other brain symptoms may disappear after opening the mastoid but there still may be a complication lurking below in the skull contents. In that case often in a few days the symptoms return, and aid the diagnosis. The peculiar psychic condition of patients which Macewen calls "slow cerebration" is a prominent symptom in most cases that have been carefully studied. With this "disinterestedness" of the patient, we contrast the oversensitiveness of other patients; the latter cannot bear light and noises; are very restless at night with delirium and crying out; and have a sleepy countenance which evidences restlessness and torture. Rarely there are severe excitations, as profound restlessness, delirium and insomnia. Consciousness is not

affected, and although the patient is downheartened and apathetic, or even if he is slow to answer, he hears, sees and understands everything. He is easily aroused from sleep. Consciousness remains almost to end. Deep coma is a very ominous symptom in connection with brain abscess, being more important and ill-omend than Cheyne-Stokes respiration. One-half of the cases showed slowing of the pulse. It drops to 60, 50, 45 and becomes irregular. Sometimes goes lower still, in one case 40, in another 20. The pulse does not remain slow at all times. Pulse is often regular, changes its condition often and slowness may only show when there is a temperature change. In Murray's case pulse was sometimes 60, sometimes 40 or 20. It has no relation to size of abscess. Two-thirds of all cases with slowing of pulse were mostly small abscesses and many uncomplicated. On the otherhand some of the large and complicated abscesses showed no slowing even in two weeks' observation. If the slowing of pulse is accompanied by chills and remittent fever it points to a sinus phlebitis with extradural or cerebral abscess; sinus phlebitis alone usually has a frequent pulse.

After emptying of the abscess, the pulse frequently rises as a rule, although the pulse may remain slow for some time without formation of a second abscess. Thus the only symptoms after two cases of operation were a pulse of 40 and 50 respectively a few days after.

Out of 81 cases 38 pulse slowed, 15 normal, 4 abnormally frequent, remaining not reported.

Out of 14 cases of sinus phlebitis with cerebellar abscess 8 showed slowing of pulse, while 6 had a pulse corresponding to temperature.

Sometimes a pulse slowing is present in an otorrhea: for instance, where there is coincident heart trouble which causes no complaint. It may help to mention here a case of this kind which led me astray for a few days. A young man, who formerly had occasional ear trouble and who had now a defect in ear drum, took cold, and following this there occurred left sided earache and headache, accompanied by gastric disturbances, vomiting and constipation for several days. The headache was mainly

over the temple, and there was right over the ear a point sensitive to percussion. Pulse, 54-50. Attention was mainly centered on his ear, and ophthalmoscope was used in effort to find local symptoms of temporal abscess. Gastric symptoms disappeared following castor oil, and upon examining the heart, it was enlarged, the tone clear, the apex beat was outside of nipple-line, broadened and intense. Earache and headache disappeared under proper treatment, but pulse remained slowed. The patient was later forced to go to bed by heart trouble, but showed none of the symptoms of his former ear and head trouble.

Out of 86 cases 26 showed constipation. It belongs to symptoms of general brain trouble, and is of diagnostic value where persons have been regular, and where it resists cathartics for several days.

General convulsions noted in 14 cases. We divide these cases into two groups according to age. First group (5 cases) includes adults and it is here that convulsion was a terminal symptom, and the coma ended in death. Schwartz, Heiman and Deutchbein each had a case with hydrocephalus internus in various stages; Thompson and Okuneff found hyperemia in cloudiness of meninges. The second group includes children and young adults whose ages were 2 to 16; here convulsions are an accompaniment of the end stage and lead to death. But the disease may begin with convulsions that later disappear. There are general convulsions with coma, grinding of teeth, *deviation conjugee*, and generally also stiffness of neck and opisthotonus. Sometimes the convulsions are infrequent, but in some cases the convulsions occur almost hourly, so that the young patient has hardly time to get out of one coma before another comes. Children easily have convulsions, even in the mild cerebral troubles or a simple otitis media acuta. It is noteworthy that 7 out of 9 cases showed more or less severe hydrocephalus internus, while one case showed no change in ventricles. Where convulsions are an accompaniment of cerebellar abscess, we have a right to assume presence of hydrocephalus internus as a complication.

One-quarter of the cases showed optic neuritis. It is

probably more frequent than this, but examinations were not fully carried out in this direction. Nevertheless, 7 cases showed no optic neuritis even on closest and repeated examinations, and yet autopsy showed one abscess or more, encapsulated and probably of several months' existence. This complication (neuritis) is especially more frequent with cerebellar abscesses that are accompanied by sinus thrombus or extradural abscess. However, it may be present in uncomplicated abscesses or even in small abscesses. We believe, however, that a severe and wide spread neuritis is especially an accompaniment of the large, uncomplicated abscess, and one of long standing. Twenty-one cases out of 81 showed optic neuritis while 7 cases showed nothing. Of the 21 cases 4 were complicated by extradural abscess, 8 with sinus thrombosis. In two cases neuritis appeared only on onset of meningitis. The length of time required to develop neuritis in these cases may be judged by the following cases of Drew and Knapp: Drew's case (1). Girl, age 16, first saw her two weeks after an otitis media acuta; 3 days later (i. e. 17 days after beginning of otitis) she had the first sign of neuritis, which later grew worse and was accompanied by hemorrhages. Death came 4 weeks later and autopsy showed an abscess involving entire left cerebellar hemisphere. Knapp's case (2). Female, age 25, mastoid was opened to relieve otitis media; 4 weeks later symptoms of general cerebral trouble; 22 days later a beginning double neuritis; death 14 days later; autopsy showed cerebellar abscess, temporal abscess and sinus phlebitis. Optic neuritis is usually equally severe on both sides; occasionally it is more marked on side of abscess. In early stages it may be limited to the side of the abscess.

Winter and Deanesly report a case of left-sided abscess, in which neuritis was limited to left papilla. Macewen observed a left-sided neuritis which developed at the time when a meningitis developed, following bursting of a left-sided abscess.

The optic neuritis accompanying cerebellar abscess is usually not severe; there is redness and cloudiness of the papilla, obliteration of its border, distension and tortuous-

ness of the veins. A further degree of neuritis is present only when abscess is of several months' standing; then the papillary border may be wiped out, the papilla covered with grayish white exudation, that spreads along the course of the vessels; veins distended and tortuous, and occasionally showing hemorrhages at the papilla and retina. Recovery from neuritis, after emptying of the abscess, is slow, and Macewen found neuritis in one case 11 weeks after operation. It usually disappears entirely, and seldom leaves behind a disturbance of eye function. A cerebellar abscess never leads to atrophy of the optic nerve.

The disturbances of vision are usually so slight as not to be noticed by the patient. How striking these are is shown in cases of Macewen and Berridge, in which three became totally blind. Macewen observed a child aged $4\frac{1}{2}$ years who had left-sided otitis media purulenta following scarlet fever; 14 days after was totally blind, and had stable mydriasis. After five weeks these symptoms disappeared, child became well and remained so for three months.

December 2 she had sudden severe browache, felt sick and took to bed; 4, XII., vomiting and slight rigidity of neck, speech and articulation disturbed, vomiting and constipation—crying at night—case became worse. 11, XII., numerous, severe general convulsions, with opisthotonus and coma; with these attacks, again became blind, pupils widely dilated and inactive; positive optic neuritis on both sides; eyes otherwise healthy; rigidity of neck. Next few days convulsions returned, finally coma with "crihydro-céphalique;" temperature subnormal, pulse frequent and small; died on 17, XII. Autopsy showed local purulent meningitis in vicinity of a large abscess that reached to pons and was perforated. With this, abnormal distension of both ventricles and the spinal canal is also filled with serous fluid containing fibrin particles. The whole circumscribed purulent meningitis following the perforation of the abscess, probably originated only during the last few days, and made its presence known by coma and the small frequent pulse. To account for the first blindness in July, and the second attack

in 13, XII (combined with general convulsions), there must have been abscess and hydrocephalus.

Cerebral abscess and sinus phlebitis, which often cause a severe optic neuritis, have never been accompanied by bilateral amauroses; nevertheless, the sudden onset of blindness is noticed in convulsions, and the degree of visual disturbance shows in no way the development of papillitis. We, therefore, take for granted that severe hydrocephalus internus causes blindness. The floor of the third ventricle, the optic tracts and chiasma are affected by the paralyzing pressure of the fluid. The disappearance of the blindness in July is accounted for by supposing a movement of the fluid, which has been observed.

Macewen's second case. Boy, age 17, old left-sided caries. Was suddenly stricken, middle of February, 1889, with general cerebral symptoms, sleepiness, occipital pain, vomiting, general malaise. Three days later he had a kind of apoplectic attack with coma, stretor, dilated pupils, small frequent pulse; following this, blind in both eyes, pupils wide and fixed.

There developed a picture which was a typical case of abscess (cerebral); when conscious, there was slow cerebration, marked rigidity of neck, masseters contracted and rigid, marked emaciation, slowing of pulse, with sub-normal temperature, medium degree of optic neuritis. With this, incontinence, fixed flexion of left arm, skin reflexes lost, left side patellar reflex lost. The amaurosis remained unchanged.

15, V., 1889. Left-sided cerebellar abscess was opened; pus evacuated amounting to 120 ccm. Following this, symptoms improved. Sight returned even before all neuritis was gone.

Macewen does not give an explanation for bilateral amaurosis in this case, but simply says that amaurosis is not rarely observed in cerebellar affections. Grant that there was, even in this case, a meningitis serosa ventricularis; could not this have disappeared when its cause (abscess) was removed? Would not a meningitis (of brain and cord) account for the previous symptoms of lost reflexes, incontinence, etc.? As stated before,

might not absorption have followed the removal of the abscess?

Third case—Berridge. Patient age 17, chronic otorrhea. August, 1879, became ill with headaches, malaise, choking. Despite a voracious appetite he is pale and emaciated. Temperature normal, speech slow, pupils dilated, papillæ somewhat cloudy. These symptoms abated for some time, but reappeared in December. Then he vomited, had severe occipital headache, well developed optic neuritis, amaurosis in both eyes. This lasted to death, 12, III., 1880. Autopsy showed abscess that involved nearly all of right cerebellar hemisphere. The further description of brain was wanting in the report.

These three cases undoubtedly show, that cerebellar abscess is occasionally accompanied by double amaurosis; as no case of temporal abscess has, as yet, been accompanied by double amaurosis, this complication is of diagnostic value in determining the probable seat of pus.

Direct Focal Symptoms.

Cerebellar abscess, in a majority of cases, is situated alone in the hemispheres. We know little positive about the function of this part of the brain. It has something to do, according to direction of fibers, with the fronto-occipital lobe, the labyrinth of the ear, and with the sensory nerves of the muscles; It has probably an influence on co-ordination of muscles and equilibrium of body. These functions, however, are so well represented in other parts of the brain that correction of these properties soon takes place after a lesion of a hemisphere. Nevertheless, dizziness and vomiting are frequent symptoms of cerebellar abscess that can, in certain cases, be avoided. Occasionally the abscess directly, or its surrounding softened zone, reaches the vermiform process, and may even lead to its destruction. Lesions of the vermiform are often accompanied by disturbance in movement of upper extremity, disturbance in carriage of body, changes which are not assisted by use of sight; *i. e.*, cerebellar ataxia. This symptom is rarely a focal symptom of cerebellar abscess. Perhaps this is rather a symptom of irri-

tation, while abscess and softening in this location produce initial symptoms.

Six cases of our statistics showed suppuration and softening of vermiform as found by autopsy, generally in large areas, nevertheless, only one case had disturbance in mobility.

Hadden reports a case of abscess transversely situated in the vermiform process under upper surface, and patient became unable to walk. This symptom appeared a few days after onset of general cerebral symptoms, lasted 12 days, and ended in death. This abscess, which possesses a distinct membrane, surely was of long duration.

Gribbon. Patient, two days before death, was able to stand up and walk about. Death came suddenly upon bursting of abscess; autopsy showed that whole cerebellum was involved except anterior one-third of vermiform and of the left hemisphere.

Cerebellum as a whole, according to Luciani, is the seat of the centers for the musculo-nervous apparatus of the body. Strengthening this belief, Macewen draws attention to the apparent depression and prostration of all strength, the smallness of the slowed pulse and respiration that were noted in two cases of his. Report of further cases is wanting.

Luciani noted, in extirpation of cerebellum, general marasmus that resisted all treatment. To emphasize this belief; recall the emaciation and loss of strength in cerebellar abscesses. This does not occur very often in cerebral abscesses, but 17 cases of our cerebellar abscess showed this symptom. This emaciation does not depend upon fever and digestive disturbances; it was ever more frequent where the temperature was normal or subnormal, and was present where vomiting was almost absent. Neither does it depend on long continued illness; it appears suddenly and becomes extreme in a few days.

There are two symptoms often accompanying cerebellar abscesses that are not direct focal symptoms, but seem to be more or less specific; they are nystagmus and disturbance of the patellar reflexes. The first symptom (nystagmus) is not often an accompaniment of cerebellar abscess, but as it occurs with every intracranial complication of

otitis media, or as it may be an accompaniment of a great variety of diseases of middle ear and labyrinth (purulent or not,) we cannot say that it is a diagnostic symptom. Our statistics give four cases of nystagmus; one case of Winter and Deanesly was a small uncomplicated abscess; another case (Jansen, Schwartze and author,) had as a complication sinus phlebitis and caries of horizontal semicircular canal, or necrosis of the labyrinth. I am of opinion that this symptom has not, as a rule, been closely looked after; perhaps it is present in a minor degree more often without having labyrinth of diagnostic importance. Disturbances in patellar reflex have been observed several times. It may be wanting on the side of the abscess, or on both sides may be lessened or increased. As such a symptom has not as yet been observed in temporal abscess, we can, therefore, consider a one-sided loss of reflex as a valuable symptom of cerebellar abscess, if meningitis can be excluded. The finding of this symptom was formerly neglected, and in late years we pay more attention to it.

Macewen and Körner each report a case where the patellar reflexes were lost on the side of the abscess. In Körner's case the reflex of opposite side was also diminished. It is worthy here to note that K.'s case had hydrocephalus internus, and the post-mortem examination of the spinal canal could not be made. Macewen's case got well, but there were several reasons for belief in presence of hydrocephalus. This leads us to believe that this symptom depends on meningitis serosa. Bilateral increase of patellar reflexes was noted in a case each of Macewen and Friedeberg. Friedeberg's case had small abscesses in both hemispheres. Macewen's case showed, a few days later, symptoms of meningitis purulenta. Bilateral decrease of patellar reflexes was noted in a case of Milligan and Hare. There was a small uncomplicated abscess in middle of anterior border of right hemisphere. Death had taken place 12 days after first symptoms.

Exceptionally cerebellar abscess reaches to and involves the pedunculi cerebelli, and sometimes into pons, although the characteristic symptoms that ought to ac-

company lesion of the pedunculi cerebelli ad pontem were not observed.

Three cases of this kind are reported by Macewen, Thompson and Hedinger.

Indirect Focal Symptoms.

Cerebellar abscess exerts a variety of influences on its surroundings. This influence extends further than to the tissue that is directly replaced by the abscess; it increases pressure in the posterior fossa, but owing to the consistence of the brain the pressure is greatest on the immediately surrounding tissue. We have one symptom which indicates an increased pressure under the tentorium, viz., tetaniform convulsions with rigidity of neck and opisthotonus. These convulsions have been noticed in a few cases, perhaps only temporarily, or ushering in the end; this has been found with large and small abscesses, but we have seen a large number of abscesses that never had such a symptom. It seems that the real cause of the convulsions is hydrocephalus internus, and its presence was demonstrated in a number of such cases. Likewise, it has been found that large abscesses are not any more frequently accompanied by local pressure symptoms than small abscesses. It seems, therefore, that symptoms do not depend on the amount of diseased matter.

Abscesses can lead to vasomotor disturbances just as tumors do. This disturbance, which is generally an edema, may involve the whole of the brain, or may cause hyperemia of meninges, or meningitis serosa, or hydrocephalus internus.

We cannot set aside the belief that some abscesses, especially the quick acting ones, are of toxic nature. Such collection of pus may have its chemical changes, that can easily affect such sensitive structures as brain and respiratory centers. May not this account for sudden death in some cases, even where autopsy showed only a small abscess, with no edema or enlargement or changes in surrounding structures? The remote effect of abscess is sometimes irritant, sometimes paralyzing. This produces general and local brain symptoms, and this makes the abscess manifest; the number and variety of these

symptoms produce various pictures during the last stages, These symptoms generally disappear if the cerebellar abscess is evacuated; that is, if the cerebellar abscess is the cause. There are, of course, various local symptoms depending upon location, whether in the vermiform process, medulla, crura, pons, etc.

Remote effects upon the vermiform process could not often be observed, owing to an accompanying labyrinthine suppuration. Occasionally we can observe effect upon the vermiform in large and small abscesses, and we may have symptoms varying from slight loss of equilibrium to well pronounced cerebellar ataxia. (Here 11 cases are reported to prove statements in foregoing paragraph.) Such disturbances in equilibrium are not pathognomonic of cerebellar abscess. They are occasionally found with temporal abscess, meningitis serosa ventriculus, or even with meningitis purulenta. It (equilibrium disturbance,) sometimes accompanies disease of the membranous semicircular canals.

We will note here that following otitis media purulenta chronica, a suppurative inflammation of the labyrinth may be caused by penetration through the fenestræ, or a carious spot through the horizontal semicircular canal. These cases are numerous, and often, after opening into bone and being confronted with the real situation, it is difficult to say whether the disturbances of co-ordination and equilibrium were due to labyrinth affection or cerebellar abscess.

Compulsory involuntary movement and position (Zwangsbewegung, zwangstellung), and disturbances of equilibrium toward one side, due to remote action on the *pedunculi cerebelli ad pontem*, are not often reported. Their presence clears up the picture, but gives no clue to the size or situation of the abscess.

Rigidity of neck, the most frequent local symptom of cerebellar abscess, is due to irritation of the lower surface of the brain in the posterior fossa, and of the spinal cord. It may be present from the beginning of the end stage, often changes its intensity and may temporarily disappear; it may appear only toward the end. It does not, in uncomplicated cases, reach to such a complete rigidity as is

found in purulent basilar meningitis (when it reaches the spinal canal). If an abscess is accompanied by such obstinate rigidity, we suspect basilar meningitis or hydrocephalus internus as a complication. This symptom is especially present in large abscesses, or those involving the lower median surface. Some rigidity has also been found with extradural abscess and sinus phlebitis, but this was probably due to the same cause (meningitis of the base,) that might have been developed and disappeared. This symptom was noted in a few cases of abscess in the temporal or occipital lobes. Therefore, rigidity of the neck becomes of diagnostic value, only after the mastoid and posterior fossa have been opened, and the posterior surface of the petrous bone is found to be intact, or after an extradural abscess has been emptied, or a thrombus has been removed from the sinus. We must not forget that we must wait a few days in the case of thrombus before trying to make a further diagnosis. To differentiate from meningitis we must think of severe rigidity and other symptoms; from temporal abscess, remember that rigidity of the neck is not such a frequent accompaniment of temporal abscess as of cerebellar abscess, and then is usually present only with large abscesses that have other symptoms (such as crossed paralysis, amnesic aphasia, hemianopsia). It is, therefore, a frequent and valuable symptom in cerebellar abscess, the full worth of which must be carefully determined in each individual case. Of course, pain usually accompanies rigidity.

If the spinal cord is involved, there is disturbance of respiration. The patient becomes soporific, breathes irregularly, coma ensues, with finally Cheyne-Stokes respiration and death. Pulse frequent, weak and small. This is the usual picture.

Occasionally the breathing becomes, during the terminal stage, slow, superficial and irregular, consciousness may remain even if Cheyne-Stokes respiration appears.

A peculiarity of cerebellar abscess is the acute paralyzing of the respiratory center, while the pulse remains undisturbed and full, or possibly slightly slowed. If we here use artificial respiration, life may be prolonged 24 hours.

If we open the abscess, as in one case of Truckenbrod's, respiration may again be resumed, after periods of wavering or Cheyne-Stokes respiration. This phenomenon occurs easily in chloroform anesthesia, and then takes us unawares. Thus, we operate on the mastoid for some reason, without ever thinking of possible cerebellar abscess, or we may trephine in the temporal region, and suddenly the phenomenon takes place. Of course, chloroform alone may do this, but if there is the least possibility of the existence of an abscess we should not hesitate to open the posterior fossa and search for it; if respiration is not resumed after one-quarter to one-half hour artificial respiration must be undertaken. We cannot make a prognosis as to the outcome of such a seizure. In Truckenbrod's case the abscess was not entirely emptied; a case of Zeller's showed no improvement after opening the abscess; further explorations have not, as yet, been made. This symptom has no relation to the size or situation of the abscess, as it has been found with abscesses, large and small, median and lateral.

A similar picture occasionally follows rupture of the abscess into the ventricle. However, there are differences. With rupture, pulse becomes small and frequent, pupils widely dilated, irregular, fixed, and convulsions or general paralysis takes place.

Disturbances of speech, owing to cells and fibers of pons and medulla being affected, are rare. Five cases are reported. The appearance of disturbance of speech, in a right-sided affection, and its motor character, always make this a noteworthy symptom. Disturbances in swallowing, which usually accompany disturbance of speech, have not been noted in uncomplicated cerebellar abscess.

Paresis of both lower extremities has been reported in one case each by Feinberg and Gribbon. First case, double-sided abscess in both hemispheres; the symptom (paresis) was present for some weeks, together with pronounced cerebellar ataxia. Second case, noticed during last 24 hours of life, and patient at the time was fully conscious. The abscess was of great size.

Cases of crossed paralysis, due to affection of motor

tracts in medulla, have not been seen. However, there are two cases of one-sided paralysis: Macewen found, accompanying a large abscess in left hemisphere, a fixed flexion of left arm, this being the remains of a former left-sided hemiplegia. The arm was entirely useless, elbow fixed, the muscles rigid and small. After opening the abscess recovery took place. Macewen says that this symptom is due to compression on the pyramidal tracts after their crossing, and he points to the fact that the cerebellum has a median lobule that reaches to the spinal canal, and so may produce direct pressure on the sides of the spinal cord in the neck.

Drummond reports a case, peculiar and unexplainable. A child (aged 9 years,) with a double-sided otorrhea, developed general brain symptoms, weakness of right arm, and attacks of right-sided spasms; during intervals patient was conscious. With this there developed a paresis of the right leg, and of the mouth branches of right facial; child became speechless, but understood everything. Drummond trephined without results at left temporal and cerebellar region. Death eight days later, and all that was found was a superficial abscess of right cerebellar hemisphere, containing 30 gm. of pus, being situated three-quarters of an inch from medulla oblongata.

Hemiplegia alternans noticed in one case of Gluck. This was only a local symptom of a left-sided cerebellar abscess that involved the vermiform and stretched from one hemisphere to the other. Death followed in fourteen days.

The facial of same side was involved (in Winter and Deanesly's case,) at times, with its orbital branches. The action of the abscess, which also affected the pedunculi cerebelli, reached eventually to pons, and probably affected the fibers of nerves after the crossing and before entrance into the nucleus.

Spasm affecting the orbital branch of the facial is noted in one case of Schwartze. This began three days before death. Abscess was accompanied by severe hydrocephalus internus.

The abducens of same side was affected in three cases. These were two small lateral abscesses and one small me-

dian abscess in immediate vicinity of pons. The length of time of existence of this symptom could not be determined in two cases, as they were first seen 24 hours before death. Doubtless it depends on some change in the center, because the abscesses were here too small and were not favorably situated to produce direct pressure.

Insufficiency of both *m. recti externi*, especially of the crossed variety, was observed by Hadden in a case with direct focal symptoms of the vermiform. This abscess contained 30 ccm. of pus, and reached from the right hemisphere (close under upper surface,) to the left hemisphere. Here, too, the disturbances were doubtless due to affection of center by edema.

Diplopia with very wide pupils, without further history as to the nature of the disturbance, was reported by Friedeberg in a case of large abscess that lasted several weeks and involved two-thirds of left hemisphere.

Disturbances of branches of the motor oculi are frequent, such as dilatation of pupils, squinting, fixed position, ptosis. Disturbances of pupil were reported in 22 cases. Either the pupils of both sides were much dilated, or the dilatation was limited to side of lesion; the pupil either does not react to light, or very slowly and irregularly. This symptom may show very clearly, may remain several weeks, may change, or may become well marked only toward the end. This symptom may be found with all cerebral troubles, no matter in what situation; however, according to situation of things in cerebellar abscess, we can believe or take for granted that it depends on distant action on the corpora quadrigemina, or the anterior portion of the oculomotorius nucleus. Strabismus was noted in four cases. Crossed ptosis with dilated pupil was noted in one case (Moos and Steinbrügge). This symptom appeared 24 hours before death; full consciousness existed, and the other eye muscles all functionated. There was here an uncomplicated abscess that involved nearly all of the left hemisphere, and a part of the vermiform process. Age of patient 23; sex, male.

The nuclear region of the oculomotorius and abducens is the boundary district for the action of temporal and cerebellar abscess. Whereas, the first very often affects

the oculomotorius, and by preference often involves the center for the levator palpebræ, which lies anteriorly and near the center for the sphincter iridis; the latter (cerebellar) only occasionally involves the center for the oculomotorius, and without regard to the sensitive sphincter center, prefers the posterior center of single eye muscles.

Involuntary fixed positions of the globe of the eye are not frequent. Case of Winter and Deanesly five days before operation, a fixed position upward, and later toward side opposite lesion. The patient was conscious and had no spasms, could at times with much trouble bring the eye to middle line; but it would at once resume its former position. As in this case there was also a turning of the head to the side opposite the lesion, we consider this a symptom of irritation of the middle section of cerebellum. Fixed position has not so much diagnostic value in children, as they easily become so affected in other brain troubles. All of these eye symptoms are to be found even more frequently with meningitis, and are, therefore, only of importance when taken in connection with other signs.

Of the trigeminus, only the motor portion is generally affected. How characteristic of a central lesion to have a double-sided affection—trismus. It is not generally severe, the masseters are rigid, the teeth are in contact; the mouth, however, can be opened without much trouble. This symptom is usually accompanied by rigidity of the neck; it may appear at any time during the final stage, but seems to remain stationary after once having made its appearance. In two cases of Macewen the trismus was accompanied by mechanical opening and closing of the mouth, *i. e.*, a kind of yawning or gaping.

Trismus is reported in seven cases, due in at least one case to severe hydrocephalus internus. Of the remaining six cases, three were very large abscesses, three were small.

Hyperæsthesia in the branches of 5th, was reported in only one case (Schwartz's), and on the side of the lesion.

With cerebellar abscess there may be involved a large part of the nuclear region, and of the fibers of pons and

medulla; oculomotorius, trigeminus, abducens, facialis, centers for speech and respiration.

Involvement of the following in otic cerebellar abscess has not been observed: namely, trochlear, glossopharyngeus, vagus, accessorius and hypoglossus. Owing to simultaneous ear trouble we cannot tell much about the auditory nerve. The action does not, as a rule, reach beyond the median line.

Double-sided involvement of the cranial nerves is rare, if we except the pupillary branches of motor oculi. Rarer still is crossed affection of the nerves. Bilateral functions, such as that of the trigeminus, respiration and speech are, of course, affected bilaterally.

We have no report of direct destruction or involvement of a nerve trunk; there is such a thing as partial damaging of a nerve or its function, or a simultaneous damaging of several cranial nerves that are in proximity at their nuclei but are not in proximity at their trunks. If there is only a single nerve involved, the abscess is so situated as not to produce any pressure on that nerve. We conclude therefore that we have to deal with a central lesion in cerebellar abscess.

To these symptoms we add a disturbance which depends on affection or involvement of the cord: namely, weakening or paralysis of the bladder and rectum. We find this condition not rarely with abscesses that have led to meningitis, and also with uncomplicated abscesses upon the appearance of sopor or coma of the end stage. Sometimes incontinence appears during the course of convulsions, as is well known. On the other hand there are cases in which difficulty with bladder and rectum appears during the last days or weeks of the terminal stage, at a time when the patient is almost or entirely conscious, and in cases in which no meningitis can be proven. This symptom was observed in one case of temporal abscess of Barker's. During the last few days before the operation and while consciousness was not entirely lost urine and faeces were involuntarily passed. The incontinence of urine remained two days after successful opening of the abscess. Therefore incontinence is not such a rare occurrence in cerebellar abscesses and is a useful symptom for

differential diagnosis from temporal abscess. This is due in part of the cases to a hydrocephalus internus, and in some of the cases of meningeal irritation which has affected the covering of the cord.

This list of symptoms, in whole or in part, accompany cerebellar abscesses. It is just a limited number of symptoms that clears up the diagnosis; they would be too many for labyrinth trouble or an extradural abscess, too few for a basilar meningitis.

Conclusion: The nearer a cerebellar abscess reaches to the middle line, the more it is apt to produce focal symptoms; and *vice versa*, the more local symptoms present, the more is there a probability of a median or a large abscess. The vaso-motor or toxic influence of abscess is generally limited so that a lateral abscess rarely reaches the middle line.

Course and Termination.

Cerebellar abscess may be present early in an otitis media acuta, but its first manifestations may be obscured by the ear trouble. However, in a week or so, the effects of the abscess are more marked and at last they may predominate over the ear symptoms. Such a close following of abscess upon ear affection is noticed in one-half of the cases.

In other cases the acute otitis media seems to subside, symptoms abate, the perforation probably heals, and we have every reason to hold out a favorable prognosis, when suddenly symptoms of abscess appear. The period between the ear trouble and appearance of abscess symptoms may be several weeks to several months.

In no case can we determine the exact stage; we are always dealing with the end stage since the symptoms when once begun make variable progress. The length of the terminal stage varies from 3 days to 2½ months. The average is 2 weeks.

Cerebellar abscess following chronic otorrhea, with a few exceptions, is generally met with in the 3d stage. The approach or appearance of abscess often produces a peculiar variety of premonitory effects. The ear trouble which has existed for several years without causing com-

plaint suddenly changes its character; thus, suddenly, there is severe earache, the otorrhea increases, or as is more general, ceases suddenly, the mastoid swells, the facialis becomes paralyzed. These ear symptoms are of importance in double otorrhea to determine the situation of the abscess. In rare cases a blow on the head may lead to the appearance of the abscess symptoms. The longest time of existence of abscess symptoms was in one case of Macewen's, from June, 1891, to May, 1892.

Whether the abscess has its origin in an acute or chronic otorrhea, the time of appearance and the development of the symptoms are much alike. Constitutional and general brain symptoms appear first generally, while the local symptoms appear later. Very seldom does the abscess first show with a set of local symptoms. In many cases there are only general symptoms, no local symptoms appearing.

If one takes into consideration the similarity of initial symptoms in acute and chronic otorrhea, the similarity in length of terminal stage, and lastly the close relation between the arrival of the terminal stage and the renewing of the ear affection in chronic otorrhea, he is justified in suspecting that many abscesses in chronic otorrhea are acute abscesses. And does not an autopsy in these cases which generally shows abscess with no membrane or only a rudimentary one strengthen this belief?

In some cases with chronic otorrhea the abscess does not produce any symptoms. The patient, from the very beginning, has pronounced meningitic symptoms that increase progressively; the autopsy shows an abscess, whose presence was never suspected, its only manifestation being meningitis from perforation. This is a rare occurrence, being reported in 7 cases; in an eighth case death was due to hemorrhage from the carotid, and autopsy showed an abscess which had never produced symptoms.

At times the abscess symptoms may be overshadowed by a coexisting sinus-phlebitis, the abscess being found at the autopsy.

Regarding the anatomic termination of an abscess we have made observations above. We saw that in one-fourth of the

cases meningitis causes death, that some cases die of a progressive encephalitis, rupture into the 4th ventricle, hydrocephalus internus, sinus phlebitis or some other complication. In one-half of the cases the final cause of death was not determined. If a manifest abscess leads to meningitis the temperature increases, and with it, as a rule, the pulse, headache increases and becomes diffuse, consciousness becomes somewhat affected, there is alternate delirium and somnolence, twitchings, paresis, disturbances of sensation, rigidity of the neck and back. The progressive softening of the surrounding tissue does not in anyway affect the abscess symptoms. The disturbances that follow rupture into the 4th ventricle we can study only by analogy with rupture into other ventricles. In both cases of rupture we have observed, the accompanying and complicating symptoms obscured the picture.

In many cases where the results at autopsy were negative, especially in cases where the abscess adhered to the dura and led to perforation through a fistula, death is more or less characteristic. The patient suddenly becomes soporific, this rapidly progresses to coma, pulse becomes frequent and small, respiration superficial and irregular, often the Cheyne-Stokes type soon follows, and at times the temperature rises. Death soon follows in a few hours; the patient who seemed well yesterday is dead this morning. Rarely is death postponed more than 24 hours from the beginning of such symptoms. Six of these cases succumbed to acute asphyxia.

Clinical Picture of Cerebellar Abscess.

There are several types whose symptoms are important in diagnosis. The following 3 cases will illustrate the several types:

A—Group with pronounced and manifold local symptoms.

Case of WINTER and DEANESLY—Sixteen year old boy suffered since August, 1893, with deafness in left ear at times. On Christmas there was sudden headache and vomiting that passed off in a few days; he recovered enough to go about his work. January 1, 1894.—Sudden severe pain in left ear, head and neck; was compelled to retire to bed. During the next few days vomiting and left-sided otorrhea. From February 2, he could not sit up, lay at all times bent up and on right side, and opposed all attempts to shift his

position; from Feb. 3, some photophobia and strabismus with fixation of bulbi upward.

6-II-94—Somewhat emaciated, always tired and sleepy, yet easily disturbed and shrank from light. Answered unwillingly and only upon repeated questioning; however, gave good answers and a useful account of himself. Complained of diffuse headaches that were especially severe in forehead and left parietal region. Severe inflammation of left middle ear, with swelling of auditory canal and thick pus, mastoid intact, hearing on that side lost. Tem. 36.1, pulse 60, Resp. normal. Patient lay bent on left side, and refused to be moved; head turned to right, neck rigid, every movement painful. He did not want to sit up, but if placed in a sitting posture, he held head rigid backward and to right. Eyeballs turned to right and fixed, left being fixed a little higher. With some effort and with twitchings he could turn the eyes fully to the left, but in a few seconds they slowly returned. Nystagmus upon looking upward. Proptosis of left eye, the space between lids widened, closing of lids not complete unless both eyes were closed with much effort. Pupils normal; the left papilla showing plainly neuritis optica, while right seemed normal. No paresis or disturbances of touch, reflexes and spinetors were normal. Sight somewhat poor.

7-II—Condition the same; temperature subnormal; left optic neuritis more marked, and shortly respiration became Cheyne-Stokes in type.

8-II.—Increasing sleepiness. Trephining and emptying of a nearly median abscess containing several drachms of pus.

Of course another case like this would not be exactly like the foregoing. Place the following as premonitory conditions and we complete the picture and have many similar cases: (premonitory) an old otorrhea with sudden cessation, followed by severe pain in ear and occiput of same side, or general brain symptoms with vomiting and constipation, more or less fever with slowing of pulse, or there may be trouble in walking or trismus.

B—Group with pronounced general brain symptoms, with few and uncertain local symptoms.

KOCH—Female, age 20, chronic right-sided otorrhea; had for some days headache and vomiting, general malaise and took to bed.

31-VIII-92—Well nourished patient, with diffuse headaches. She looked tired, answered unwillingly and in monosyllables, but sensibly and correctly. At times she began a syllable without finishing it. Severe vomiting with little appetite, constipated for the last eight days in spite of cathartics. Temp. and pulse normal. Neck somewhat rigid and right eye showed a small degree of choked disc. Right pupil wider than left, but reacted to light and distance. Chronic right-sided otitis media with polypi and sinking of the superior wall of the auditory canal. Mastoid normal.

2-IX—Condition the same, but neck not so rigid while the choked disc of the right side was not so clearly to be made out. Mastoid was opened, exposing posterior-fossa, dura and sinus intact.

3-IX—Headache still, otherwise no change, somewhat nervous and upset.

5-IX—Became more tired and more sleepy, expressionless face, tendency to sleep, vomiting and constipation continues; rigidity of neck seemed to have disappeared.

10-IX—Condition unchanged; temperature and pulse normal.

12-IX—Early. Suddenly unconscious, stertor, death in half an hour. Abscess (size of a pigeon's egg), with membrane in intact surroundings, situated in anterior border and lower surface of right cerebellar hemisphere.

This type is present in many variable forms. In these cases the chiseling of mastoid is an important aid in diagnosis. All the symptoms first show their true value when the trephining shows a healthy dura and sinus, or show that they are not etiological factors in the case. At times also the chiseling exposes the carious destruction and shows us in what direction the abscess is probably to be found.

If we happen to be dealing with a left-sided otitis the diagnosis of cerebellar abscess becomes more certain if crossed pareses and aphasic-disturbance are wanting in the course of long observation.

C—Group with more or less pronounced brain symptoms in which diagnosis is essentially surgical.

MACWEN—Man, age 38, became ill 15-XI-91 with otitis media purulenta acuta of right side, and since had pain in right ear, pain in head and neck on right side. He would recuperate at times, but during the last few days pain became worse.

13-II-92—Conscious, pain over right ear, but principally behind the ear and in neck of right side. Pain on touch over the jugularis internus and over the apex of triangle of right side. Tem. 37.2, pulse 55, mild neuritis optica (more marked on right side). Lungs healthy. Opened into mastoid and fossa sigmoidea which was filled with granulations. In the region of sinus there was a mass of granulations; after scraping these from dura, a small fistula was seen on the inner side of the sinus exuding a drop of pus. Upon splitting the dura evacuated 12 ccm. of pus. Sinus was thrombosed and was not opened. Result, recovery.

In many cases the general brain symptoms are even more marked; or in some cases a single local symptom is predominant in the picture from the beginning, and leads us to suspect a cerebellar abscess. The finding of a fistula, however, gives certainty to the diagnosis.

In 19 cases in which we recall how the diagnosis was made, and how the operators were led to open into the abscess, we find that in 7 cases a dural fistula assisted in finding the abscess. In 4 cases, owing to local brain symptoms, the abscess was sought for in cerebellum and found. In the remaining cases the temporal lobe was opened and then the cerebellar because the general brain symptoms were not very clear, or because the previous thorough opening of mastoid was neglected.

Concerning Differential Diagnosis.

The diagnosis from an extradural inflammation of the posterior fossa is, in all cases of the II group, impossible unless the Jansen symptom is present; namely, pain upon pressure at posterior border of mastoid. We can never exclude from the beginning a coincidence of abscess and extradural inflammation. The attempt to make a clinical differentiation is not of much significance to him who, in every case of intracranial disease following otitis media, pushes forward from mastoid into the cranium. If with this proceeding we find extradural pus and turn it out, it will develop in a few hours, or a few days at most, whether or not there is also a cerebellar abscess present, taking it for granted that the abscess will produce symptoms. If the dura is then found intact we at once explore the cerebellum. It is easily distinguished from sinus phlebitis in pronounced cases with chills, intermittent or remittent temperature, icterus, enlarged spleen, metastases and local disturbances in the course of the jugularis internus or at the apex of lateral triangle of neck. If the metastases are absent, if the fever is always at same height and moderate, and if chill is present only at beginning, followed by another chill or two, we may not be able to distinguish it from cases of group II. If, in such cases, we feel a hard swelling along the course of the jugularis internus it is more probably a thrombus, but we must not forget that lymphatic vessels and glands lie along the vein, and that they are occasionally swollen in diseases of the ear, and may mislead us. Thus they may be mistaken for a thrombus of the internal jugular, or they may conceal a thrombus. If on the other hand we have slowing of pulse it points more to an intracranial collection of pus.

Slowing of pulse is here an important symptom that has often made it possible to diagnose an abscess accompanying pronounced sinus phlebitis. Sinus thrombosis and cerebellar abscess are found together in one-half the cases, therefore it is well always to think of the one where the symptoms of the other are pronounced and predominant.

The practical value of the foregoing remarks must not be overrated. If there is doubt whether there is simple phlebitis or cerebellar abscess the next indication is to open the mastoid and expose the posterior fossa. If we find a phlebitis we treat it surgically, and watch to see if the general brain symptoms (excepting optic neuritis) disappear in the next few days. If they do not we explore the cerebellum, which we do immediately in those cases where the sinus is intact. In suspected cases we must limit our explorations to the sigmoid sinus, because the symptoms may also come from phlebitis of *bulbus venæ jugularis* or *sinus petrosi* which easily connect with the much affected superior petrosal.

It is difficult of diagnosis from meningitis whose most frequent and important variety is purulent. It is generally a basilar meningitis if it follows an ear affection, and spends its force mostly on that region which is also easily affected by the remote action of cerebellar abscess. Therefore symptoms of both may mingle and confuse. If the meningitis runs a course of several weeks and if the temperature is slightly or not febrile, if the headache is insignificant, and if consciousness and general health is not disturbed, and if the patient is about, all of which has happened, though rarely, it is difficult to make a differentiation; if, on the other hand, the abscess is quick acting, so that sopor appears in first week, there is fever, irritation symptoms, hyperesthesia, nocturnal delirium and retracted abdomen (this being especially noted in children), then can a differentiation become impossible. In the large majority of cases, however, the meningitis has a continued and high temperature, rapid pulse following a slow pulse, consciousness is affected, early rigidity of neck is very severe, pupils are irregular, there is an early irregular strabismus, and there is the picture of

symptoms due to a severe affection of the base of the brain and the spinal cord. Nevertheless, even in such a typical case, it may be hiding symptoms of abscess, which is annoying, as the latter could be quickly relieved. Abscess symptoms following otitis media acuta have not been noticed before the end of the second week.

For practical understanding these clinical thoughts are weighty and important. If we have opened the dura and found signs of purulent meningitis the patient is in no worse a condition, as he would have died any way if we had let him alone. On the other hand there are occasional cases where meningitis got well after opening dura. The earlier we open the dura from the affected ear the more chance have we to confine the meningitis to its origin. We can use antiseptics, among which iodoform in ether-alcohol is best, to maintain contact with the disease and possibly prevent cerebrospinal fluid, which goes to the wound in dura, from spreading the noxious matter to the arachnoid space until the proper adhesions have formed.

If we do not want to interfere with the meningitis because the operative treatment for this disease is not yet fully recognized by surgeons, we may puncture the dura and examine cerebrospinal fluid for round cells, etc., before we proceed. Of course it is supposed that we have opened the mastoid and exposed the posterior fossa, for which proceeding there is sufficient indication in these cases. Lately, to assist diagnosis, there is recommended the puncture of the spinal canal in the lumbar region as suggested by Quincke. I think this is superfluous because we can obtain the same information by carefully puncturing the dura, thereby also gaining puncture-fluid from the immediate neighborhood of the inflammation, this being only valuable for an early diagnosis. With Oppenheim I think lumbar puncture is of doubtful value, because it may be possible that it produce such a sudden and severe lowering of pressure of the cerebrospinal fluid as to lead to spontaneous bursting of a superficial abscess.

An interesting affection that is difficult to differentiate is meningitis serosa. There are two forms, (1) meningitis serosa corticalis and (2) m. s. ventricularis. The first may follow chronic otitis media as found at two autopsies.

CASE—Female, 63, old right-sided otorrhea, large papillomatous polypi in outer auditory canal, was taken into hospital April, 1883, because of severe earache and aural hemorrhages which had existed for several weeks. In the neighborhood of the ear there were several collections of pus, which were incised and healed. She was discharged on 13-VII-83 with several fistulae. Early in Oct., 1883, pain and swelling reappeared near right ear; patient lost sleep; gait was at times staggering.

30-X-83—Again taken into hospital. Swelling behind mastoid, pressure here very painful, pains radiating toward temple and vertex. Temperature and pulse normal. Opening and evacuation of pus from region of antrum. After this pain and general condition was variable.

6-XI—Began to be somewhat soporific.

8-XI—Delirium at night, soporific by day, speech hesitating, right pupil smaller than left, reacting slowly to light.

9-11-XI—Changeable condition, browache.

12-XI—Marked hebetude, constant groaning.

14-XI—Consciousness changeable.

15-XI—Wholly unconscious. Several clonic spasms of the left lower extremity. Toward evening tonic spasm of left upper and lower extremities.

16-XI—Left-sided facial palsy, frequent respiration.

17-XI—Death in sopor.

AUTOPSY—Carious defects in sigmoid sulcus and at tegmen antri. Dura intact. Right sinus transversus is obliterated entirely to the bulbus venae jugularis. Pia of convexity is greatly edematous, quite congested; basal pia is greatly infiltrated with watery material, especially at chiasma and its surroundings. The ventricle is not much distended, but contains quite a little clear fluid. There is nothing special at the ependyma. Brain substance normal, but rich in blood.

Meningitis ventricularis can form in connection with a severe caries of middle ear or inner ear as Levi has shown. The differentiation into cortical and ventricular meningitis is purely anatomical, and we have as yet no clinical diagnostic indications for distinction. Clinically we must at present be satisfied with a meningitis serosa ex otitide.

The symptom-complex of such a meningitis serosa shows also three cured cases in literature, which I mention on account of their importance and the newness of the subject:

| | |
|-----------------------------|---------------------|
| Case IV. Case of Politzer, | } Recorded by Levi. |
| Case V. Third case of Kipp, | |
| Case VI. Case of Macewen. | |

The remaining cases of Levi we can better add to the

class of meningeal irritation (in the reported case of Styx, syphilis is not excluded,) if we prefer at present to form a classification. Optic neuritis cannot serve as a criterion in distinguishing, as long as we know that a sinus thrombosis can develop with either, producing no symptoms or only a little general disturbance.

To these true cases of meningitis serosa we add 20 cases, in which it was combined with cerebellar abscess. The pathogenesis of these cases we have discussed.

The symptoms of meningitis serosa are very much like those of cerebellar abscess, and not infrequently almost identical. If we take the cases recorded by Quincke, and our six otic cases, we see a picture something like the following: General brain symptoms, headache, dizziness, vomiting and constipation, all generally well pronounced; pulse often slowed; temperature, as a rule, normal, and only exceptionally attacks of fever lasting a day or so. The majority of cases show optic neuritis; this disturbance is generally well marked, and at times reaches a high degree; however, it may be absent in some cases, or in some cases it appears, but remains insignificant. The patient is generally overtaken with sopor, is very restless, furious delirium, alternating with a condition of mental confusion; in one-half of the cases consciousness is not blurred and the apathetic sleepy condition, which is quite characteristic of cerebral abscess, has occasionally been reported.

It is noteworthy that patients with hydrocephalus internus and cerebellar abscess remain with clear consciousness for some time, often even to death, despite the fact that the illness may linger over several weeks.

(*To be continued.*)

CHOLESTEATOMA OF THE EAR.

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PUBLISHED BY GUSTAV FISCHER, JENA, 1897.

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One of the most frequent complications of chronic supuration of the ear is cholesteatoma. Bezold found that it constituted 2.1 per cent. of the various ear diseases, and 1.5 per cent. of chronic suppuration. In operative cases, according to Reinhard, 29 per cent. were complicated with cholesteatoma. In fatal cases by intracranial complication, cholesteatoma existed in the proportion of 1:3, showing the importance of this subject.

Cholesteatoma of the ear is a roundish or oval body, varying in size from a poppy seed to a pigeon egg, having a shiny mother-of-pearl surface, and having a bluish-white or yellowish color. The covering or husk resembles skin in structure, but has no lymphatic or hair follicles, shows a plain rete Malpighii, whose papillæ dip deep into the connective tissue for variable distances. The cells of the apices gradually lose their roundness as they approach the surface, they become flattened and horny. These horny cells, which are polygonal, show no nucleus until stained with ammoniacal carmine solution.

These horny epithelii form lamillæ which stick together like the scales of an onion and form the body of the swelling, the various layers producing the pearly shiny coat.

The contents of the structure is usually a small kernel of matted pus, or a cheesy detritus of decomposed or disintegrated epithelium. Between the lamillæ we find cholesterine crystals, fat globules and often numerous microorganisms. Very rarely were giant cells found. Blood and lymphatic vessels are entirely absent within.

The cholesteatoma may be situated in the external audi-

tory canal. Toynbee found it 18 times here. Some of these, however, co-existed with an aural suppuration, so that we could not entirely exclude their origin from middle ear. Some had led to well-marked destruction of bone, and also to fatal intracranial complications. Ordinary obstructive cerumenous collections are often only slightly to be distinguished from cholesteatoma (microscopically), especially by the pigmentation and the more wavy form of epithelial layers. Very old cerumenous collections show macroscopically in their outer layer, the pearly coat of the cholesteatoma, and like it can cause a disappearance of the auditory wall.

We should regard the following as a transition from cerumen to cholesteatoma, or even as cholesteatoma; namely, those masses in the auditory canal which are extremely difficult to remove, which resist the prolonged action of alkaline douches, and which can only be removed instrumentally and with pain. Lately Hessler has gathered 67 cases of epidermis-plugs from his practice, and thus wishes to confirm Toynbee's opinion that cholesteatomata have their origin in the auditory canal, while Schwartze seeks to establish for them an origin from the drum cavity. It seems we cannot make a sharp distinction between cerumen obturans and epidermis-plugs.

Habermann had a case of cholesteatoma co-existing with chronic otitis media. He found some small roundish outgrowths in region of the membrane, he found also in the segment of Rivinus a prolongation which had caused disappearance of the upper bony wall, and which reached to the tegmen tympani.

Cholesteatoma has been found at times in the substance of the membrane, not only in the mucous layer but also in the epidermal layer. Urbantschitsch observed, in three cases its development and disappearance by extension into the auditory canal, one case with otitis media and two cases without such.

Pathologists and ear specialists are not as yet agreed upon the origin and existence of cholesteatoma in the region of the middle ear.

Pathologists compare cholesteatomata of the ear with those of the pia and the skull bones, and classify them

amongst the tumors as hetero-plastic formations. Their origin is either from split-up embryonic cells, as in dermoids and atheroma, or from throwing off of the epidermis of the first branchial cleft (branchiogenic cystoma, Küster). Böttcher believes they originate from the epithelium of the aqueductus vestibuli. Virchow is not prepared to make an explanation.

Primary cholesteatomata of the petrous bone, as new growths, have rarely been observed. To the case of Lucae and the incomplete description of a case by Schwartze in his "Surgical Diseases," he (Schwartze) adds an observation entitled "Cholesteatoma verum squamæ ossis temporum," accompanied by suppuration as proven by the cicatrix in the thickened drum membrane; it had, however, left no trace of inflammation either in the drum cavity, the antrum or in the air cells.

Those aurists who do not entirely disbelieve the occurrence of primary cholesteatoma in the ear, even though rarely to be demonstrated, claim that by far the greater number that occur can be traced to previous suppuration; they account for epidermis in the tympanic cavity usually covered by cylindrical epithelium by a metaplasia of the epithelium (Wendt, von Trötsch, Bezold, Politzer).

Wendt in one case was able to show the histologic origin as being from the endothelial layers of the trabeculæ of the membrana propria; he further sought for a cause in a change or transformation of the epithelium of the mucous lining of the middle ear, together with a desquamative inflammation. A similar occurrence Bezold traced to the mastoid, while Politzer ascribes their existence to cut-off glandular involutions of the mucous lining of the middle ear, in which, during the course of a middle ear inflammation, the mouth of the gland closes up and the epithelium in the new-formed cyst grows on and on.

Von Trötsch believes that there is a formation of a kernel of thickened pus, which, by the pathologic irritation and pressure, the growing mass exerts upon the walls, in a peculiar manner absorbs and involves the superficial products of the epithelium. Von Trötsch also pointed to the fact that there exists in the normal antrum mastoideum large flat giant cells, which resemble the horny plates of the outer skin.

Von Tröltsch's theory is good in many ways, but does not hold good for those cases in which a central kernel of thickened pus is entirely wanting.

The metaplasia of cylindrical into pavement epithelium under the influence of chronic irritation is not of very rare occurrence, and Schuchhardt has demonstrated its occurrence in other organs of the body. It is of frequent occurrence in our district in obstructing ear-polypi, which extend into the external auditory canal. That it is not necessary to have a contiguous extension of the pavement cells, or an implantation of this flattened epithelium, has been shown in the observations of cholesteatoma in the bladder.

Habermann in his latest work has shown the fibers of a meso- and entodermal origin have the property of leading to "hornifying," and can fully "epidermize" themselves.

Leutert has lately called attention to the fact that trauma, such as by certain therapeutic measures, may assist in further development of an already existing cholesteatoma, and we must here think of a kind of transplantation of the epithelium. By injuring the skin, epithelial particles are torn away or loosened and transplanted upon the granulating surface where they grow; they are then shut in by further granulations and have a chance to grow into rounded formations.

The possibility of implantation of epithelium, in a case of trauma, was shown by Garre's observation in tumors upon the palmar surface of the hand in two cases; by means of an incised wound, epithelium was sunk into the hand and this grew into a shut sac. Kaufmann experimentally showed the "life-possibility" of epithelium thrown off or separated from the body. He placed some thrown-off epithelium into an incised wound on a cock's comb, and closed the wound. The epithelium grew to a tumor, which consisted of horny flattened epithelium.

The consideration of a similar possibility in the ear will be a great drawback to an extended use of Mangold's method of sowing epithelium for "epidermizing" exposed surfaces in the middle ear cavity.

Habermann first clinically observed the most frequent kind of transplantation, and proved histologically that it

was because of the epidermis continually growing inward into the tympanic cavity through some defect of the drum membrane.

Since the favorite situation of cholesteatoma is the atticus, and the epidermis so often gains an entrance through perforations in the membrana flaccida Shrapnelli, Bezold feels justified in connecting the higher perforations with cholesteatoma.

However, the epidermis may wander in through defects situated elsewhere in the drum membrane. Thus, Habermann saw a strip of epidermis several millimeters long, reaching over the handle of the hammer, across the niche of the oval window at the canalis Fallopieae and through the aditus into the antrum. In another case he was able to find two entrance-openings, one in the middle and the other near the border of the drum membrane.

Politzer says that the epidermis may grow in, through defects in the lateral walls of the antrum mastoideum and this lead to formation of cholesteatoma.

I called attention to four observations of "artificial" cholesteatoma. An antral opening was kept patent by a leaden plug for the purpose of douching; the epidermis grew in and lead to cholesteatoma, where in earlier operations we always found pus.

The further details concerning the "wandering-in" of epidermis into the region of the middle ear, we imagine to be as follows: Owing to a long continued purulent inflammation of the mucous lining of the middle ear, its cylindrical epithelium is, to a great extent destroyed, leaving behind a suppurating surface which extends to the drum membrane and to the external auditory canal. As pavement epithelium has a greater power to resist the destructive action of pus, it easily extends in spots, either during the suppuration or after its disappearance, taking the place of the cylindrical epithelium, as this is less able to cope with and recover from the attack of inflammation. Scarcely any remedy has been left untouched in the effort to extirpate the rete-Malpighii in the middle ear; sharp curettes, caustics, etc., and only exceptionally do we succeed in replacing it by solid granulation tissue, which develops into connective tissue cicatrices. In such chronic

suppuration the cylindrical epithelium has not equal regenerative power, wherefore we frequently see superficial union of surfaces situated opposite to each other which, after healing, leave behind new-formed bands, membranes, or an extensive collection of connective tissue.

The simple invasion of the middle ear by the epidermis is not sufficient always to produce the formation of cholesteatoma. Nevertheless, we consider it desirable that the cavity should cover itself with epidermis, in partial or total defect of the drum membrane, as this resists better external harmful influences than does the mucous membrane, which too readily responds to such irritation by producing mucus and pus.

In this case it seldom happens that cholesteatomatous masses are formed. Besides the epidermizing of the middle ear, we must have certain other favorable influences. This may be (1) a difficulty in the throwing-off of the horny epithelium; (2) in an enclosed production of it (Haug).

There is no doubt that in the so-called "epidermized-tympanum," without cholesteatomatous formation, the superficial cell layers become horny and are thrown off; it is also known that the "thrown-off" horny cells are not re-absorbed by the epidermis. What, then, becomes of them?

With every hemorrhage in the outer layer of the drum membrane, and with every pigmentation of it, we can observe a wandering from umbo toward the periphery until they get into the sphere of influence of the chewing-movements of the lower jaw, and thus together with cerumen are forced outward. Bezold showed that there is a tendency for the epithelium of the external auditory canal and of the membrane to spread itself or extend at the surface, thus leading to the wandering. Therefore, in normal conditions the outer horny cells of the membrane and the outer canal have a tendency to be driven out of the canal; this, by means of the movements of the lower jaw, which acts upon the cartilaginous canal and tends to drive the cerumen and epithelium outward. Probably the hairs, which sometimes reach to the canal and which grow outward, facilitate the outward movement.

So can the horny cells formed in the tympanum reach the light of day. In one case of radical operation I was enabled to watch this slow wandering of the epidermal covering in the tympanum. The stapes was absent, and the fenestra ovalis was closed by a membrane, which had a dark blue appearance, owing to the shining through of the dark vestibule. Upon this dark vestibule a small triangular, calcareous or bony implantation stood strongly out. In the course of four months it had traveled 5 mm. downward, and was partly situated upon the lower border of the oval window.

Necessary conditions for this unnoticeable wandering are (1) a small amount of "thrown-off" cells; (2) a clear, unobstructed way. In the so-called dry epidermized cavity very few cells are thrown off because the irritation (for an increased production) is absent. We can, also, take for granted that in these cases there has been no such severe and extended destruction of the cylindrical cells, wherefore they (the cylindrical cells,) can more quickly regenerate, so that the epidermis, when it wanders in, finds very little exposed surface upon which it can lodge. Often the upper region of the tympanic cavity is shut off, owing to the retraction of the hammer and the adhesion of the drum membrane; the epidermizing, therefore, does not reach backward into the aditus, being held back by the numerous bands and new-formed membranes over which it seeks to travel. If there are crevices in these bands the epidermis may wander in and lead to formation of "daughter-cholesteatoma."

Sometimes the auditory canal is peculiarly shaped so that the action of the lower jaw upon the contents is interfered with, or possibly the hairs are more or less absent; the ordinary pushing out of the contents is interfered with, and we find a plug of cerumen and cells. In my opinion it is this anatomic deformity which is responsible for the existence of obstructing ceruminous plugs, and not the increased nor decreased production of ear-wax.

Therefore it seems to me that a hyperplasia or increased production of epithelium is not always necessary in every case of cholesteatoma. As soon as epidermis settles in

niches with narrow openings, its removal becomes more difficult. Haug has pointed out that the pushing in of the epidermis into a cavity produces an erection of the rows of cells, which form a wicket-like closure to the opening, thus forming an impediment to their own egress and to that of their off-spring.

An accumulation of horny cells suffices to produce what is the most marked action of cholesteatoma, namely, a destruction of bone. This is accomplished first by its pressure upon the periosteum, which in turn influences the nutrition in bone, or a thrombus in the bone-vessels of the haversian canals leads to a destruction of bone by affecting nutrition.

Siebenmann called attention to the fact that epithelial pearls, that is, concentrically formed, round "hangers-on" of the cholesteatoma, the so-called daughter-cholesteatoma are found nearly always where there is a growing petrous bone, *e. g.*, in young persons; these he considers purely passively forming fillings for the pneumatizing mastoid. I will mention an observation I lately made. In a case of cholesteatoma in a twelve year old boy I operated radically upon the attic and aditus. In several years there was no tendency to formation of lamellæ, only an occasional tubal tympanic catarrh. However I noticed a dark, bluish-gray tightly drawn membrane at a place where there was formerly a hard bony surface, and when touched it sounded like drum-membrane. One day the patient, who had grown considerably during the interval, came to me with a recurrent discharge from the ear; the membrane was displaced by a cavity about 1.5 cm. deep, which showed no tendency to fill up with granulations, but was being covered with epidermis. Where the middle ear is not exposed the cholesteatoma, owing to the slight opposition, would wander into such an opening. The daughter, just as watchful as the mother cholesteatoma, greatly accelerates the development of these since it affords new points of attack upon the bone.

Kirchner described the growing of a cholesteatomatous mass into the Haversian canal; this has not been otherwise observed.

Thus there may be, without any suspicious symptoms, great destruction of bone, the dura may be exposed, the sinus may be compressed, reddened and displaced, and at the operation we are surprised to find changes which required years for their development, yet the patient never perceptibly suffered. The change may go even so far that dura mater and brain are displaced or affected and the mass projects as a bulbous formation into the skull-opening. Should the formations extend in other directions it may lead into a sort of spontaneous healing, such as one not infrequently sees. The posterior osseous external canal wall is caused to disappear by the pressing mass, likewise the bony lateral wall of the tympanic cavity, the ossicles, even to the stirrup plate, are pushed out, and we find a large cavity, which is composed of auditory canal, tympanic-cavity, aditus ad antrum, from which cavity the cholesteatomatous masses more or less completely empty themselves through the auditory canal. The growing mass has now no opposing surface against which it must press to produce absorption of the bone and the process ceases. A similarly favorable result may be obtained where there is a breaking through of the lateral wall of the antrum mastoideum.

This destruction of bone is wanting, of course, where the cholesteatoma grows in a connective-tissue diverticulum. There is then a formation of sack-like cholesteatoma whose contents are of the usual composition, whose rete-layer is surrounded by a connective tissue coat, and in the other we find the normal cylindrical epithelium of the middle ear.

Where the cholesteatoma has an uncomplicated action the pressure causes the disappearance of bone, and there are formed roundish cavities, with smooth walls, lined by a thin coat of connective tissue upon which is situated the rete Malpighii, and over this the horny cells. Signs of inflammation are small celled infiltration, periostitis, and otitis with formation of osteoblasts; all of which signs may be absent in these cases.

In most cases of cholesteatoma we not only deal with an accumulation of epithelium, but also with an increased production of epithelium. The inflammatory irritation may appear with the first "wandering-in" of the epider-

mis, or later, settling upon or added to the epidermis. In the latter case we must imagine the presence of caries or influences of infection, such as impure bathing-water, the dropping of oil into the ear, a spot of granulations, etc., that is if these influences are present and exist for some time. The former smooth, shiny surface becomes cloudy, reddened, and covered with a smeary coat of thrown-off cells. There is an increased production of cells which are displaced and act as irritants, and the whole cholesteatomatous cavity may become filled with a nasty, ill-smelling, thick fluid, in which the single lamellæ may offer the only clue to the cause of the formation of the tumor. The character of odor bears no relationship to the severity of the case, as it is induced by harmless saprophytes. In a radical operation the wounds held together by plastic material heal primarily.

In other localities there is a possibility of drying-up, and after the irritation ceases a normal formation of cells; the possibility is, however, out of the question in a cavity enclosing a cholesteatoma. The skin masses swell up and are replaced, the underlying stratum becomes inflamed and then we have the appearance of the acute symptoms of cholesteatoma. The swollen and replaced masses are pressed upon by the increase of the products of inflammation and partly disappear through the entrance. If by this the contents are lessened the symptoms may disappear or abate for a time.

The inflammation is not limited to the surface; it may involve the deep layers such as the connective-tissue basement membrane, the periosteum and the bone. Then we find the signs of periostitis and otitis in small celled infiltration, formation of granulation tissue, osteoblasts with many nuclei, the disintegration and absorption of bone.

Pronounced necrosis and formation of sequestra are seldom found in connection with cholesteatoma, but there is frequent formation of polypi. The bone caries which accompanies cholesteatoma increases its dangerous qualities by leading to intracranial complications. The causes of the inflammation, after a long continued stay in the cholesteatomatous cavity, are somewhat mitigated in

their action, while for the same reason the saprophytes lose some of their virulence; then when the dura is reached we have formed a pachymeningitis externa and more or less developed extra-dural abscess. From dura the process may advance to formation of a brain abscess, sinus-thrombosis or to a diffuse purulent meningitis. The sequelæ may have various and peculiar combinations. Jansen mentions a case of cholesteatoma which seemed no different in its manifestations from any severe cholesteatomatous attack, but it led to a circumscribed brain-tuberculosis and a tubercular arachnitis following a perforating pachymeningitis. Sometimes the mass breaks into the inner ear, destroying the labyrinth and making it seem a continuation of the middle ear cavity. The disease may then involve the skull contents by entering through the porus acusticus internus and the aqueduct.

We must here describe a secondary change in bone, namely, osteosclerosis. On account of the chronic irritation the pneumatic cells and the marrow regions disappear, and the bone takes on a ivory, smooth consistency. Lemcke, Haug, Hartmann and others have repeatedly shown that this hardening takes place most frequently upon the lateral surfaces of the processus mastoideus; it is therefore not a protection against the further spreading of the inflammation, but must be looked upon as a dangerous complication, since it may prevent a breaking-through, which would be comparatively harmless, and thus favor the involvement of the inner ear and the skull contents.

Regarding age at which cholesteatoma have been observed we make a general statement: "It appears at all ages but somewhat more frequently in children than in older persons."

Regarding sex it has not been determined. Bezold thinks it is more prevalent in males.

Inasmuch as we do not know the etiology we will include scrofula. In scrofula we often have hyperplasia and inflammation of the nose, pharynx, etc., and these conditions favor the development of chronic suppuration, the cause of cholesteatoma.

It is now apparent from the foregoing statements that

cholesteatoma may attend every chronic suppuration.

The duration is various, it may be months or years.

We know, from the above, the termination of the disease. Cholesteatoma is a chronic disease. The suppuration had probably existed intermittently for some time. Coincident with the discharge there may have been pain in head, dizziness, vomiting, etc. This picture repeats itself unless properly treated until severe symptoms from inner ear or skull contents, or a pyemic fever drive the most stubborn person to seek aid; however, then it may be too late to operate. Often the formation of cholesteatoma affords no symptoms and we are first called to a case by the manifestations of a complication.

The general health, even in well-developed cholesteatoma, may be excellent. If the local symptoms exist for some time, such as purulent discharge, hemorrhages from polypi and granulations, headache, dizziness and vomiting, of course the general symptoms will soon suffer. The presence of headache, dizziness and vomiting does not necessarily point to an intracranial complication, but it is the strongest indication for a radical treatment.

Fever is not always present, even in a putrid broken down cholesteatoma with pus and involvement of bone. Subperiosteal abscesses and intracranial complications induce fever. Therefore when fever is present we must think of a complication. The epidermal coat, the sclerotic bone and the partly thrombosed vessels are illy adapted for the reception of septic matters.

Subjective noises may or may not be present, depending upon the situation and extent. Objective examinations yields the most variable results, depending upon the duration and locality of the disease.

In the neighborhood of the ear, in the mastoid region, we often find cicatrices in the bone and fistulæ, as also on the neck from suppurative lymphadenitis of otic origin. Often we can feel, at the anterior border of the sternomastoid, a string of bead-like chronically enlarged glands connected by thickened vessels. This may interfere with palpation of the diseased jugular; and because we have pain upon pressure, we may think that the disease has

spread to the sinus and jugular. If the jugular is really involved and nothing interferes with our palpating it we do not always find it sensitive or a hard cord. Sometimes there is an isolated diseased lymph-gland upon the processus mastoideus, which will interfere with examination for tenderness of the bone, or when purulent, it may impart fluctuation and we may take it for a rupture through the corticalis or a subperiosteal abscess. The hardening of the bony tissue of the outer wall of the mastoid (as above stated and described), and the eburnizing of the corticalis, may exclude tenderness upon pressure, and still there may be the greatest destruction within. Rarely, where the extent of the formation reaches to underneath the skin, we may get a feeling of elasticity instead of bone, at the mastoid. Paralysis of the facial, when present, may be due to secondary inflammation of that nerve or to a breaking through of the mass into the Fallopiian canal, in which latter case it is permanent.

The auditory canal may appear normal, but usually it contains a peculiar ill-smelling, sweetish (smelling) pus, at times mixed with cholesteatomatous particles. Roundish pearls with layers point without doubt to a diagnosis; however, skin-like lamellæ may have their origin in the epidermis of the auditory canal, which has been stimulated to increased cell-formation by the stagnating pus, and before we can make a diagnosis we must trace the origin to the middle ear. Fistulæ are frequently present. The drum membrane may show all the changes which are observed in a chronic suppuration. Cholesteatoma are seldom found in that portion of the cavity which lies below the proc. brevis; this accounts for the fact that perforations or defects in the lower half of the membrane are of not so much import in these conditions. In rare cases a perforation in the membrane may fully cicatrize despite the existence of a middle-ear cholesteatoma.

Of special importance are the holes in the bony circumference of the drum membrane and including the so-called "high perforations," that is, the very fine fistulæ above the proc. brevis. Bezold goes too far when he classifies without exception, the high perforations under cholesteatoma, since these conditions may be occasioned by sup-

puration in the attic or by caries of the hammer. However, it is of greatest importance in diagnosis. Bezold, in 65 cases of high perforations, found and demonstrated epidermis in middle ear cavities in 44 cases.

The situation of the drum membrane defects at the rim favors the appearance of defects at the limbus or in the lateral tympanic wall.

Politzerization or catheterization aid materially in regard to the condition of the membrane. The attic may be filled with pus and cholesteatomatous masses, the membrane of Shrapnell ruptured, and a defect exists at the upper limbus and yet the normal blowing noise heard since the lower half of the cavity is completely shut off from the upper half.

The hearing tests where the lower part of the membrane and the ossicles are uninjured generally show signs of interference with sound conduction. Evidences of labyrinthine involvement, by functional tests, teaches us to hasten the radical operation, especially where dizziness exists.

A positive diagnosis is made only when we can demonstrate epithelial layers in the cavities of the middle ear, and that they are formed there.

As the examination of the patient does not always happen to take place when there is an epithelial layer to be seen in the middle ear, it will then greatly assist us in diagnosis to rinse the cavity with a tympanic canula after we have cleaned out epithelial remains from the canal and cavity. If the characteristic skin-particles are then brought out of the ear by this procedure, then it shows the presence of a cholesteatoma. The situation and size of the mass can only be determined by an extended operative exposure of the middle ear.

Examination with a sound shows the presence of a cholesteatoma only when it squeezes out of the middle ear some typical particles.

Prognosis: Without treatment the prognosis, both as to recovery and as to life, is doubtful; where a timely and a radical treatment is undertaken, prognosis is almost always good. The point of time, when danger arises, cannot be determined beforehand. However, fever, head-

ache, vertigo, vomiting and signs pointing to an involvement of the inner ear, indicate operation.

Therapeutics: Is local. We have several treatments: prophylactic, symptomatic and radical.

Prophylaxis is synonymous with the treatment of acute and chronic middle ear suppuration.

The symptomatic treatment consists in the healing up of the co-existing disease of mucous membrane and the bone, the removal of the cholesteatomatous masses and the prevention of their new formation. If the bone is sufficiently destroyed and at a favorable situation, so that we can view the cavity from the canal or from an opening behind the ear, it is then easy to remove the lamellæ by use of the pincette or scoop. In some cases we see a smooth shiny surface, reddened and partly excoriated, or partially covered with granulations. At first we use mild antiseptics, using iodoform or iodoform and boric acid (1:4) in severe cases; boric acid, salicyl-boric acid, the dropping of alcohol or boric acid and alcohol and brushing with a 1 per cent. to 5 per cent. solution of nitrate of silver. The hyperplasia is then easily controlled, and there is formed a smooth cavity, whose epidermis requires months or years to form new lamellæ, which we can then control as before.

In such cases an operative procedure would be of no use, since we introduce, with the newly implanted epidermis, also a new rete-Malpighii (a new matrix for formation of cholesteatoma). In no way are we sure that new lamellæ, new cholesteatoma will not form from some irritation at some time or other. I cannot say how the new method of Stacke will turn out, namely, implantation of periosteum and, upon this, skin.

In order to avoid certain harmful influences, as the entrance of moisture, it is recommended to make a water-tight tampon with vaseline and cotton and place it into the ear.

A convenient treatment for removing the masses and influencing the matrix may applied or tried upon such cholesteatomata as those whose situation and shape do not permit of examination by the eye. For this purpose the tympanic or antrum canula is passed through some

defect or fistula in the membrane into the cavity in which we believe the new formation to exist; it is then fixed, and by means of copious douching we at first remove the mass and then inject or blow in the chosen remedies, depending on the nature of the drug. There is no doubt that by these methods of procedure we are able to clean up and keep dry for some time small undivided cavities with smooth walls.

This procedure can, at its best, give us no exact idea of the size and shape of the mass and its cavity; it does not tell us much about the branching or smaller cavities. It still conceals from us how much of the epidermal surface has been left untouched, and we may leave behind cavities shut off by resisting epidermis, or by connective tissue, or perhaps by a crust of some insufflated powder, and it may still be discharging, or it may contain a "pearl" that is quietly pursuing its bone-destroying course, possibly in the direction of the inner ear, the skull cavity or the blood vessels.

Besides this, the plan of treatment is such a great trial of perseverance to both patient and physician, that it is seldom possible. It means a daily douching of the canula for weeks or months, and, after all this trouble, in the majority of cases the otorrhea begins anew after months or years.

Symptomatic treatment, therefore, is available and reliable only where the cavity can be carefully inspected, that is, where there is total destruction of the lateral atticus wall and the bony posterior wall, or a broad fistula behind the ear, and in small isolated cholesteatoma situated in the anterior half of the upper segment of the tympanum, with absence of the lateral wall up to the tegmen tympani.

There are minor operations which form a connecting link between symptomatic and radical treatment, whose aim is to simplify the complicated shape of the cavity; thus, the excision of the drum membrane, together with the hammer and anvil, and the removal of the lateral bony tympanic wall and other bony projections. In rare cases we may accomplish cure by this method alone, and often where there is already a defect, it may be necessary

to make the entire cavity visible in order to lay bare the little side pockets and cavities.

If the cholesteatomatous cavities are not to be controlled by the eye, we should endeavor to make of them, if possible, a visible cavity. We accomplish this by a broad exposure of the region of the middle ear, and keep up such openings in their original size and form by the implantation of epidermis.

Free exposure of the middle ear region, that is, a joining of tympanum, the attic, aditus ad antrum and the antrum into one single cavity, has often been accomplished (Zaüfal, Wolf and Kuester); it has been but slightly in vogue on account of danger of stenosis in the auditory canal, behind which the disease may quietly progress. Those specialists who oppose this are those who are not satisfied "when the cotton is dry, after the patient has carried it in his ear for 24 hours."

In order to avoid this, Schwartz (through Wegener,) endeavored to make public a method whose object was to expose the antrum by a lip-like fistula behind the ear. This procedure, however, left standing the bony posterior wall, the aditus ad antrum and the lateral attic wall, thus obscuring the view.

To Stacke belongs the credit of relating his experience of having exposed all the middle ear cavities without harm, and these he kept visible, as we see them at the time of operation, and as they must be kept in order to be under our control.

After it became thoroughly established that we must have complete visibility during the epidermizing, there sprung up two methods; the one seeks to establish a large permanent opening behind the ear; in the other, a broad communication between antrum and canal by removal of the separating wall is considered sufficient.

I instituted a method which Körner modified slightly a year afterward. Here despite the primary closure of the wound behind the ear the whole cavity was easily seen, no diseased bone could become covered with thick skin and hide itself under pus and cholesteatoma. I, however, avoided the objectionable openings behind the ear, by sealing them plastically, where they are again operable according to my wish.

By all other methods skin is transplanted upon the bone in which the undiscovered disease-spots and cholesteatomatous discharges may remain undisturbed and which may, as in Leutert's cases, lead to recurrences.

By means of two horizontal cuts I form a flap out of the cutaneous posterior wall, I turn it outward and sew it from within on to the outer skin and periosteum, so that the lateral wall of the cavity, where the bone is absent, is clothed with epidermis from within. A necessary requirement for the visibility of the entire cavity is an extended removal of the posterior wall, together with an oblique removal of the posterior and most lateral part of the auditory canal toward the apex of the mastoid process.

Injury of the stapes and facialis can be avoided by careful operation.

The length of time for cure after a radical operation for cholesteatoma stands in inverse ratio to the extent of the formation; this is explained by the fact that a greater or lesser part of the cavity is already clothed with epidermis, and need not wait to be clothed with the newly implanted flap. Four to six weeks suffice for a complete healing. Pain after operation is usually no obstacle to a good after treatment.

Recurrences are possible in every kind of operation, as well in a chiseled canal behind the ear which is kept open as in a healed operative wound. The vaseline cotton tampons offer a certain protection against foreign substances (water, etc.), especially where there is no fistula behind the ear. A large opening behind the ear can not so easily be made water-tight, and other harmful substances may enter.

In several cases of involvement of both ears where I have healed cases (of about equal numbers), the one by closure and the other by keeping the wound open, I observed that the recurrences were more frequent in the open side than in the closed. In the open treatment it is often disturbing to have hairs growing into the cavity.

In all cases of dry cholesteatomatous cavities we have a source of infection in the tube, which we seldom can control. Catarrh of the tube and the rest of the mucous membrane in the tympanum are not always excluded in

operating, the increased production of mucous and possibly pus moistens the young skin and may lead to eczema, destruction of tissue, etc.

I have sought to combat this difficulty by not removing, when healthy, the hammer with its vascular plexus; this I did with the hope that it would be drawn by the tendon of the tensor tympani toward the inner tympanic wall and would shut off by a new formed membrane the anterior portion of the cavity from the tympanal tube mouth. Suppurations in the vicinity of the head of the malleus have compelled me to operate upon it later. In other cases the retracted malleus did not close the tube, but only the anterior part of the atticus. I never succeeded in closing up the tympanic tube mouth although I scraped that region regularly with a sharp spoon.

Nothing remains then for us to do but the following: unless in very severe cases to take full charge of the patient twice a year; in the intervals we seek to treat nasal troubles, etc., to take other prophylactic precautions against a possibility of catarrh of the cavity, etc. Where there is a constant tendency to relapse a climatic treatment often does definite good. We prefer country or mountain air, sea-air being moist must be avoided.

Regarding the ability to hear: where the middle ear is freely exposed, where the membrane, hammer, and anvil are removed, there is not necessarily an injury to the hearing ability. The improvement in hearing which often follows is supposed to be due to the removal of the foreign growth from the cavity, the healing of granulations and polypi, and the division of rigid adhesions.

Changes upon the stapes or round windows, as well as diseases of the labyrinth, are not influenced by our procedure. Generally the ability to hear remains unchanged or bettered, rarely getting worse. Therefore for these reasons I see no objection to a free exposure of the middle ear cavities.

SO-CALLED AUTOPHONY (THAT IS, PATHOLOGIC
RESONANCE OF ONE'S OWN VOICE).

BY DR. G. BRUNNER,

ZURICH, 1897.

(Translated and Abridged by H. A. ALDERTON, of Brooklyn.)

By autophony (or tympanophony) we understand a disturbing resonance of one's own voice (breathing or circulation sounds) which has its origin in an abnormal patency of the eustachian tube. The tube is not an open canal, but has a valve-like action due to the influence of muscular motion; normally the tube is slightly closed, in such a manner that it opens more easily toward the pharynx. The valve-like closure takes place in the pharyngeal part of the tube, behind the tubal mouth; thus there are conditions in which the soft membranous tubal-wall presses against the cartilaginous median part and after every opening of the slit returns to a state of closure. Under the mucous membrane of the membranous portion there is a fatty cushion, as well as folds in the membrane, both of which may be of importance in the closure. We shall see in the following description of cases, that in autophony, this condition of equilibrium is disturbed, inasmuch as the tubal cleft near its opening is not closed, or in milder cases, the closure is altogether too imperfect (*labiler*).

There is no doubt that in a case of patency of the tube the voice assumes a crashing, disagreeable, resounding tone. For this reason alone must the tube generally be closed, but there are other reasons. Mach and Kissel have drawn attention to the fact that the simultaneous transmission of sound waves from the outside inward lessens the effects of interference on the *membrana tympani*. Generally no noise finds its way through the tube; when sounding bodies (such as the tuning fork) are introduced through the mouth and approach the ostium *tubæ* the tone becomes weaker and weaker the deeper we go in. Even our own voice reaches the tympanum by means of the external ear.

As already noted, in autophony, not only does the voice have this hollow crashing resonance which seems to vibrate within the head or ear, but a corresponding sound in the diseased ear accompanies respiration and the pulse. These phenomena can also be observed objectively with the aid of the auscultation tube, and better so where the autophony is one-sided, as it usually is. The voice resonance is strongest with the nasals *m* and *n*, which we have also called resonants. These tones are produced by diverting the expiration current from the mouth, through the nose, thus inducing vibration through the nasopharyngeal space and in the nasal-cavities. This shows how in these sounds there is a special tendency for vibrations to be carried up the tube.

The bursting trumpet-like tone I account for in the changed resonance surroundings or circumstances; in the ordinary manner we have transmissions, resonance is carefully omitted, but there is a different condition of affairs when the vibration wave goes through the tube into the drum cavity, because the enclosed air of the middle ear with its resounding walls is easily set in vibration.

Autophony generally appears only at intervals and can generally be more or less driven away by various manipulations; it disappears almost always upon lying down, or by bending the head forward or almost always after meals (digestive congestion), also by Valsalva's method (i. e., by swallowing with the nose closed), by which the air is rarefied in the naso-pharynx and tube, and the walls of the tube are brought closer together. All these procedures act against the opening of the tubal cleft. The same effect is accomplished by irritating applications to the tube by means of the catheter ($\frac{1}{4}$ - $\frac{1}{2}$ per cent. solution of sulphate of zinc) or by nasal douching.

That autophony appears where the tube is open has been proven clinically and experimentally by Poorten and Flemming.

Does obstruction of tube also produce autophony?

Some authors, thus Urbantschitsch, assert: "Autophony occurs with closed as well as open conditions of the tube and may be caused by plugging up or stoppage of the outer auditory canal."

I cannot agree with this. Regarding voice-resonance in stoppage of the external auditory canal, we must admit that in these cases one's own voice has a changed sound, but it is only in a mild degree and is not to be compared with and not to be mistaken for a true autophony. It is more difficult to answer the question whether the obstruction, i. e., a complete closure of the tube, may produce autophony. Autophony appears not infrequently in the course of catarrh of the middle ear and tube (acute and chronic) in which we would expect a strengthening of the closure and not a weakening; in some cases I found it difficult to introduce air into the ear even with the catheter.

We should think twice before adding obstruction of the tube as a cause of autophony, because even if a few cases seem to point to such a cause, there are many and more important arguments against this. We should remember that autophony is in no way a regular accompaniment of tubal obstruction.

I have looked up the literature regarding cases of obliteration or deformity of the tube, and among the few observed cases there was great difficulty of hearing and subjective noises, but no autophony; such were the symptoms also in an interesting case of O. Wolff, in which a bullet became fixed and fully occluded the tube and produced a drawing in of the tympanum.

Therefore, clinical facts show us that stoppage of the tube alone is not sufficient to produce autophony, and that usually other factors are necessary. What are these factors?

We have seen above that generally in the lower part of the tube there is produced a not very tight closure due to a clinging of the soft lateral walls to the cartilaginous wall and this is the state of equilibrium to which the tubal cleft returns after being opened, due to a general pressure in the tissues. Suppose there is a catarrhal process in the tube, and suppose the membranous wall becomes more rigid and stiff, so that after the cleft is open there is never an entire sinking back or return of the walls. When the voice has once found its way into the lower third of the tube, it will probably produce a resonance in the ear, even

if the rest of the canal is obstructed. We would have here autophony, not because of obstruction but in spite of it.

Recapitulation.

Autophony depends on deficient closure in the pharyngeal portion of the tube.

A simultaneous difficulty of penetration in the upper part of the tube must not be taken as a cause of autophony, since clinical experience teaches us (1) that in gaping of the tube (as by a diphtheritic cicatrix at the ostium) there is severe autophony, and (2) that a perfect closure or sealing of the tube alone does not produce autophony.

I do not believe that obstruction of the external auditory canal can of itself produce a true autophony.

We must also admit that we have still something to learn regarding what the conditions are that may produce resonance.

In nearly all cases we dealt with patients (adults) who had suffered for some time with chronic nasal catarrh and in this relation we could possibly speak of a catarrhal autophony, in contradistinction to that produced by cicatricial contractions and possibly by muscle-spasms in the tube, etc.

The more direct causes of this catarrhal autophony we can only surmise and they may well be of various kinds: stiffness, rigidity or too great dryness of the membranous wall which is usually moist and soft; this would prevent the membranous wall from clinging or adhering to the cartilaginous, thereby interfering with a spontaneous closure after opening. In severe cases it seems the pharyngeal portion is almost always open. We must, of course, also think of the possibility of atrophic processes. We do not know how much importance spasm of the tubal muscles is.

Diagnosis generally offers no difficulties. Generally the voice resonance is also objectively perceptible and the more so as it is generally one-sided. We should also observe the increased autophony with *m* and *n* and the result of auscultation with airdouche (absence of the opening blowing sound), disappearance of the trouble by reclining or bending forward, the favorable action of the

digestive-congestion; also snuffing in of air with closed mouth, negative Valsalva's method, etc., etc.; also the results of the use of irritating powders in the tube and nose.

We should also remember that the resonance involves only one's own voice and respiration and not noises and tones coming from without.

Prognosis—Is different and depends on causative factors (catarrh, cicatrices, etc.). In my career prognosis was good except one case which lasted three months.

Therapeutics—Anticatarrrhal treatment when necessary. Treat naso-pharynx, inject zinc sulphate solution into the tube, etc.

Of course we can see that therapeutics depends on causation.

ABSTRACTS FROM CURRENT OTOLOGICAL, RHINO-
LOGICAL AND LARYNGOLOGICAL
LITERATURE.

I.—EAR.

**A New Combination Chart For the Examination of School
Children's Eyes and Ears by Teachers.**

361. ALLPORT, F. (*Journ. American Med. Ass'n*, June 25, 1898.) A description of the method of examining school children adopted by the Chicago Board of Education.

[This or a similar plan should be used in all schools, in order to give children with defective eyesight or hearing the advantage of early attention and to prevent them from being handicapped by their defects.] *Scheppegrell.*

Middle Ear Ossicle Forceps.

362. ALLPORT, FRANK. (*Laryngoscope*, July, 1898.) The ends of the forceps turn gradually upward and become expanded into two semi-balls which come firmly together upon pressure with the fingers at the handle, and expand six mm. upon removing the pressure. *Loeb.*

Mastoiditis.

363. BANE, W. C. (*Medical News*, March 12, 1898.) A careful review of the diagnosis and prognosis of mastoiditis and of the radical operation for its cure. The report of two cases is given, showing fatal complications. The brain had been involved through the tympanic vault in both cases, which proved fatal. The autopsy showed extensive meningitis. *Scheppegrell.*

**The Active Constituents of Cod Liver Oil in Chronic Adenitis
with Otorrhea.**

364. BOTELER, W. C. (*St. Louis Med. Era*, April, 1898.) The patient had suffered for several years from marked enlargement of the lymphatic glands of the neck, involving the mastoid, carotid, submaxillary, and the superficial and cervical groups on each side. There was a purulent discharge from the left ear. In addition to

local treatment, cod liver oil was administered with excellent results.

Scheppegrell.

Note on a Case of Hemorrhage from the Ear.

365. BROWN, W. H. (*Lancet*, June 4, 1898.) A child aged five years developed a sudden hemorrhage from the right ear, the amount of blood lost being very great. It was arrested by iodoform packing but recurred to such an extent that the child became dangerously anemic.

An examination showed a swelling which passed the right tonsil over toward the median line. It did not pulsate. Believing that the hemorrhage was from the internal carotid, the common carotid was ligated at the point of election, which resulted in a complete recovery.

Scheppegrell.

Extraordinary Case of Horse-bite—The External Ear Bitten off and Successfully Replaced.

366. BROWN, W. J. (*Lancet*, June 4, 1898.) The greater portion of the pinna, together with a semicircular flap of an inch radius from behind the ear, was bitten off, in the case of a boy aet. 14 years, leaving only the tragus with a quarter of an inch of the helix and lobule. Though the portion which had been bitten away was in a very unsatisfactory condition, and as the usual surgical instruments were not at hand, the dismembered portion was attached by the use of common needles and thread. A successful result was accomplished. *Loeb.*

Facial Paralysis Occurring in the Course of Middle-Ear Disease.

367. CLARKE, J. J. (*Laryngoscope*, April, 1898.) From a clinical standpoint the cases may be grouped in three categories: (1) Cases arising in the course of acute middle-ear suppuration; (2) in chronic middle-ear disease either from inflammatory effusion within the aqueduct of Fallopius or from ulcerative damage of the nerve; (3) following mastoid operations due to inflammation or to injury of the nerve. Illustrative cases are reported.

Loeb.

Three Cases of Brain Abscess Following Otitis Media.

368. COE, Spokane, Wash. (*Archives of Otolaryngology*, Vol. XXVII, No. 3.)

CASE I. A man, aged 28, who some months previous had

suffered from severe pain in the left ear, which after one week was followed by a free discharge, chills, high fever and vomiting. On examination there was seen pus coming from the middle ear and granulations springing from the upper tympanic wall. His general condition was bad. He had daily elevation of temperature, malaise and anorexia. Tenderness developed over the mastoid and there was redness along the sterno-cleido-mastoid muscle. The mastoid was opened and no pus found. The next morning, however, there appeared a free discharge of pus from the mastoid wound. For four or five days progress was uneventful, then the temperature ran up to 103.5° F. with pain in the head and the ear became very severe. Next day patient had a chill and temperature reached 105.5° F. Pus formed beneath the sterno-cleido-mastoid muscle and was drained by an opening through the body of that muscle. After an interval of ten days it was noticed that patient's right leg was not moved as freely as the left. The patient groaned, cried aloud and complained of intense headache in the left frontal and temporal regions. Temperature was normal, pulse 60 to 70 and full. The paralysis of the leg became complete and extended to the right arm, hand and right side of the face. There was hesitancy in speech and amnesic aphasia. The patient lay in a semi-stupor. Operation was again done and a button of bone removed, one and a half inches above and behind the external auditory meatus. The dura was opened and a probe passed in all directions for a distance of two and a half inches between the dura and the brain, but without result. For the next ten days the condition was unchanged except that he made no complaint of pain. He had complete loss of control of the rectal and vesical sphincter muscles. On the eleventh day he seemed brighter and during the next few days his appetite improved, the paralysis disappeared and he was soon up and walking about in his usual state of health except that he had a slight amount of facial paralysis. Examination showed the ear to be perfectly dry.

The patient passed out of observation for a period of two months when he returned complaining of intense pain in the head, anorexia and weakness. His condition grew

rapidly worse, stupor deepened into coma and finally death.

On autopsy the dura was found thickened and firmly adherent to the motor areas of the cortex. On section of the left hemisphere an abscess was found occupying the lower and central portion of the frontal lobe.

Case II. A man, aged 46, who for three weeks had suffered from acute otitis media. There was a history of previous attacks of otitis media, and cicatrices showed where a double mastoid operation had been performed in childhood. There was intense pain over the left side of the head and slight hesitancy in speech. Although there was no decided tenderness over the mastoid, it was determined to open it, and there was found almost complete obliteration of the antrum and mastoid cells. The middle ear was cleansed of a small amount of ichorous pus. The operation was followed by no improvement. The temperature was normal and pulse 60 to 70.

After waiting a few days and a diagnosis of subdural abscess having been made, a button of bone one inch in diameter was removed from a point the center of which was one inch above and behind the external auditory meatus. The dura had a normal appearance. It was incised and a probe passed in all directions with negative results. The patient's return to consciousness was followed by extreme stupor, deepening into absolute coma and death.

On autopsy a small abscess cavity was found in the temporo-sphenoidal lobe, about one inch below the surface. From this pus cavity minute sinuses extended into the roof of the tympanum.

Case III. A woman, aged 28, some weeks before suffered from acute suppurative otitis media, and on the discharge of pus she was relieved from pain. Later she had severe headache, some dizziness and facial paralysis developed on the right side.

On examination the external auditory canal was swollen and tender, and contained several polypi. Temperature 100.4° F., pulse 108. Some tenderness over the mastoid. Removal of the polypi revealed a partially destroyed Mt. and dead bone.

The condition being very little improved, the mastoid was opened and considerable pus and granulation tissue was found in the antrum. The intense head pain continued and stupor supervened, pulse was 60 to 80, with normal temperature. An intracranial opening was determined on, but the patient sank before it could be carried out.

On autopsy pus was seen to exude from the internal auditory canal. The outer surface of the petrous portion of the temporal bone had a normal appearance, but when the outer casing was removed the entire inner structure was disorganized.

The inner tympanic wall and semi-circular walls were destroyed. There was an abscess cavity in the right cerebellum, containing about two ounces of pus.

Campbell.

The Artificial Membrana Tympani.

369. CHEATLE, A. H. (*Laryngoscope*, March, 1898.) While the results in the great majority of instances are negative, some improvement may be obtained by the use of an artificial ear drum in chronic middle ear suppuration, where the discharge is light or has ceased, and in which either a large portion of the membrane below the short process of the malleus has been lost, or the whole of the incus or the descending articular process has been destroyed by caries. The following rules should be enforced:

(1) At first the period for which it is worn should be short and then gradually increased; (2) it should always be removed at night, the ear being gently syringed after removal and before introduction with a trustworthy, but not irritating antiseptic solution; (3) if pain, bleeding, increase of discharge, or any complication arises, it should be left out at once, to be gradually worn again after such complications have subsided.

Loeb.

Contribution to the Study of the Acquired and Congenital Occlusions of the Auditory Canal.

370. CONTRADE. (*Annales des Maladies de l'Oreille du Nez. et du Phar.*, No. 7, July, 1898.) The author has before published articles on this subject. His idea was that in acquired occlusion there is always a small opening left. The first case contradicts this. A man of 32 in washing

a barrel got some caustic soda in his right external meatus. The ear after this discharged pus until June, when it stopped, and pus began running down the pharynx. In December he came for treatment, the canal was found closed and the hearing bad. A crucial incision and packing produced a medium large meatus.

The second case was a girl whose meatus closed at five years in the course of a chronic suppuration. The occlusion could not be overcome; it was bony.

The third case, a girl of 17, suffered from suppuration up to her 13th year, when it stopped. The occlusion was complete, but the girl did not allow an operation.

The next patient was a man of 29, with congenital occlusion, which he did not permit to be operated on. The indications for the operation are only exceptionally absolute ones.

Holinger.

An Additional Note on the Treatment of Strictures of the Eustachian Tube by Electrolysis.

371. DUEL, A. B. (*Laryngoscope*, February, 1898.) While it was suggested in a previous paper that the method of carrying the negative pole of the galvanic current directly into the tympanum might be of value in cases of the sclerotic variety of catarrhal middle ear disease, even when the tube was very patent, it was not for such cases that the procedure was advocated. Relief can be promised in those cases where there is a decided narrowing or complete stenosis of the eustachian tube, in chronic tubal catarrh or in connection with catarrhal otitis media. Inconsiderable or no relief is to be expected where there is distinct evidence of labyrinthine disease, or in residual purulent cases. A reliable milliamperemeter is necessary, as well as a rheostat and the use of a voltmeter will be found of advantage. The position of the eustachian orifice should be ascertained before hand, by means of a silver catheter, and after being properly molded it is best to be insulated by winding a narrow strip of rubber tissue around it. The bougies are now made of gold instead of steel. When the bougie has been passed up to the point of constriction it is best to turn on the milliamperes, and hold the bougie against the constriction for one minute. If the constriction is felt to soften up,

another milliampere should be turned on for another minute, and so on for five if necessary. If dizziness appears a lower current must be continued for a longer time. If the constriction resists after five minutes it is best to desist for a week, and then to attack with a smaller bougie.

Loeb.

Excision of the Ossicles for Chronic Purulent Otitis Media.

372. FRIEDENWALD, H. (*Medical Record*, June 11, 1898.)
A report of a case with a satisfactory result.

Scheppegrell.

A Case of Chronic Suppurative Otitis Media, Followed by Cerebral Abscess and Suppurative Meningitis.

373. DENCH. (*Archives of Otology*, Vol. XXVII, No. 3.)
A man, aged 36, who for a number of years had been subject to repeated attacks of severe headache, confined to the left side of the head, came with a history of having suffered intense pain in the left side of the head for two and a half weeks. On examination both Mt were found destroyed, and there was a small amount of fetid pus in either tympanum. There was no tenderness over the mastoid, or along the jugular. There was slight tenderness on percussion over the left temporo-sphenoidal region. Temperature was 102° F.

The mastoid was opened and found sclerotic. Cholesteatomatous material was removed, both from the antrum and the tympanic vault. The antrum and tympanic vault were made continuous with the external auditory meatus by the Stacke-Schwartz method. The posterior wall of the membranous external auditory canal was split longitudinally, thus making two flaps which could be pushed into the bony cavity.

In spite of the operation the temperature rose to 103.8° F., and within 24 hours there developed symptoms of amnesic aphasia. It was now determined to enter the cranial cavity, and the original incision was carried forward to the external angular process of the frontal bone, and the cranium opened about one inch above the external auditory canal. The meninges were found intensely congested and somewhat thickened. On aspiration a little turbid fluid was withdrawn, and on freely incising the temporo-sphenoidal lobe a large amount of broken-down

brain tissue was discharged from a large abscess cavity. Gauze drainage was employed; and on recovering from the anesthesia the aphasia disappeared. The temperature fell 1.5° F. A few hours later the patient had a chill, and the temperature began to rise slowly until finally reached 106° F. Death followed on the fourth day, after opening the temporo-sphenoidal abscess.

The autopsy revealed a purulent leptomeningitis of the entire left side of the cranium. No other abscess was found in any portion of the brain except that described in the left temporo-sphenoidal lobe. The left lateral sinus contained a rather firm clot, not extending below the sigmoid portion. There was a recent clot in the torcular and in the lateral sinus of the opposite side. There was no perforation of the roof of the tympanum; but from the thickening of the overlying dura, it seemed probable that infection had taken place through the communicating veins.

Campbell.

Affections of the Ear in Gouty People.

374. GELLE. (*Medical Age*, May 25, 1898.) The author attempts to prove that gouty people have a predisposition to ear affections. He concludes with the following remarks:

1. In adults or children predisposed to, or suffering from, gout the ear may be affected with acute suppurative inflammation. This otitis is very intractable.

2. The gouty otitis media may start from simple congestion or infection from the naso-pharynx; the congestion may be in the attic or in the ossicles. Later on, infiltration with lime salts and retraction of the membrane are observed.

3. Very often the catarrhal otitis announces the attack of gout and disappears with its onset.

4. The vertigo of gouty people is almost always due to ear affection.

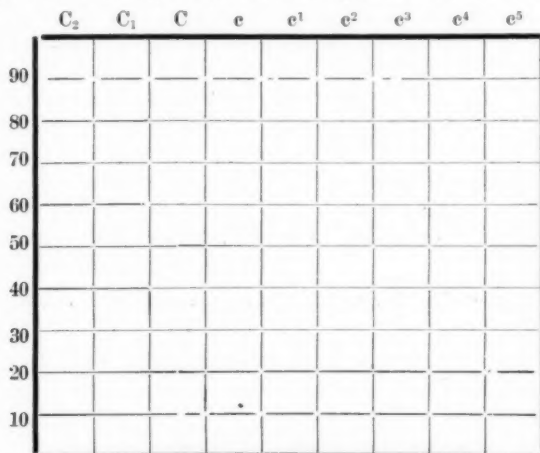
Scheppegrell.

A Rapid Method of Making Graphic Charts of Hearing Power for Various Tones.

375. GRANT, DUNDAS. (*Laryngoscope*, February, 1898.) Hartmann advised the use of five forks C (128). C' (256), C'' (512), C''' (1024), C'''' (2048). The length of time in seconds that each fork is heard by a healthy ear, after

the best stroke is to be noted as normal of 100 per cent. The per cent. of hearing in abnormal cases is to be determined by multiplying the time in seconds, during which the fork is heard, by 100 and dividing by the normal time in seconds.

The writer advises the use of three lower forks, one, two and three octaves below C (128), and one an octave higher than C''' (2048). He arranges his chart as follows:



Each square is colored upward in accordance with the patient's ability to hear, and if perfectly normal, the entire chart will be colored.

The writer has also arranged a table of percentages for his own tuning forks, which simplifies the plan of obtaining the percentage.

Loeb.

Advance in Oral Instruction of the Deaf in Illinois.

376. JORDAN, J. C. (*Medical News*, June 4, 1898.) The author, who is superintendent of the Illinois Deaf and Dumb Institute at Jacksonville, reports the progress in respect to the institution of the deaf and dumb in the State, and offers the following remarks:

A notable development in the progress during the past few years has been the advancement made both in the quality and extent of oral instruction. The attitude of the State toward the instruction of the deaf in speech

and lip-reading has always been liberal and progressive. Ten years ago only 35 per cent. of the pupils were receiving oral instruction. At present 55 per cent. are in the oral department, in which speech and lip-reading are the ordinary means of communication, or are receiving special instruction in this art every school day.

Scheppegrell.

Periauricular Abscess After Circumscribed External Otitis.

377. LANNOIS, LYON. (*Rev. Hebdom. de Laryngol., d' Otol. et de Rhinol.*, No. 24, June 11, 1898.) It is not very rare that a periauricular abscess is mistaken for a mastoiditis. The author, however, cites several instances where mastoid operations were intended and even commenced before the real condition was recognized. Leutert described similar cases in the *Arch. f. Ohrenhk.* Even a Bezold mastoiditis, with infiltration of the tissues of the neck, may be simulated. Careful examination will clear matters.

Holinger.

Rupture of the Ear Drum Not Necessarily Incurable.

378. LAUTENBACH, L. J. (*Medical News*, May 28, 1898.) Under ordinary conditions the ear drum has considerable recuperative power, and even after removal of the ossicles a new membrane may be formed.

Scheppegrell.

Some Unusual Causes of Otalgia.

379. LESTER, J. C., and GOMEZ, V., (*Laryngoscope*, April, 1898). A case of otalgia due to neurasthenia is reported and the following are announced as unusual causes of the condition: hysteria, the presence of an epithelial scale resting upon the drum membrane or upon the walls of the canal, the introduction of certain oleaginous substances which decompose, certain drugs, such as salicylic acid, quinines and iodides, malarial intoxication, nasal stenosis, neoplasm in or near the ear, anemia, luetic dyscrasia, typhoid fever and throat affections.

Loeb.

Cases of Cerebral Abscess.

380. MARSH, F. (*British Med. Journal*, April 30, 1898.) In complicated cases, which constitute by far the majority, a diagnosis is very difficult, and sometimes this is very difficult, and sometimes this is impossible without exploratory operation. The following cases are reported:

1st and 2d cases, chronic suppurative otitis media, abscess of temporo-sphenoidal lobe, operation, recovery.

3d case, chronic suppurative otitis media, mastoid abscess, temporo-sphenoidal abscess, operation, recovery.

4th case, chronic suppurative otitis media, mastoid abscess, temporo-sphenoidal abscess, meningitis, operation, death.

5th case, chronic suppurative otitis media, septic lateral sinus thrombosis, suppuration along course of internal jugular vein, secondary brain abscess, operation, death.

Scheppegegrell.

Three Cases of Intracranial Abscess: The First two Cerebellar and Fatal (autopsy); The Third Subdural (recovery); With Remarks.

381. MCKERNON, New York. (*Archives of Otology*, Vol. XXVII, No. 3).

CASE I. There had been an intermittent discharge from both ears for eleven years, and for the past four years severe headaches on the right side, especially at the base of skull. The Mt. had been destroyed with the exception of a small portion in the posterior superior quadrant, which was bulging. Pressure over the upper third of the mastoid caused considerable pain. The bulging portion of the Mt. was incised, leeches applied over the mastoid and the auditory canal irrigated with bichloride solution. The ice coil was applied but the pain progressively increased. Temperature 101.2° F.; pulse 102. The mastoid was opened and the antrum found to contain a few drops of pus. Granulation tissue in the tympanic cavity was removed by curette. For five days after the operation the pain continued as bad as before. The temperature gradually rose to 104° F. The wound had an unhealthy look and on palpating with a probe softened bone tissue was found over the central portion of the lateral sinus. At one point the probe entered the sinus and its withdrawal was not followed by any flow of blood. A second operation was decided upon and the upper portion of the sinus was exposed for about one inch; the dura was incised and a large amount of pus and granulation tissue was removed, the curette was used freely and circulation restored above. This was controlled by packing iodoform gauze

against the sinus. The lower portion of the sinus was then uncovered as far as the jugular bulb, the dura incised and pus and granulation tissue similar to that found in the upper part were removed; the sinus was curetted and a free hemorrhage took place from below, which was controlled by packing iodoform gauze into the lumen of the vessel. The patient did not react well, she complained of most severe headache, vomiting at different times during the day and had retention of urine. The catheter was used, twelve ounces drawn which contained 2 per cent. of albumen. She became very restless and delirium set in. Temperature 105° F., pulse 154, respiration 38. The dressings were removed and the posterior dural wall of the lower half of the sinus showed a slight fulness. The dura at this point was opened and a grooved director was introduced downward and backward into the cerebellum for about two inches which liberated about one ounce of foul-smelling pus together with disorganized brain tissue. The cavity into the cerebellum was now enlarged sufficiently to admit the finger, was sponged and packed loosely with iodoform gauze. On account of the patient's weak condition active stimulation was needed to rally her. Counter-irritation over the kidneys was used and digitalis poultices kept up continuously. The urine withdrawn showed the percentage of albumen to be increasing and contained many casts. Coma supervened and just before death the temperature reached 107.4° F.

Upon autopsy no ante-mortem clot was found in any sinus of the dura, or any other intra-cranial involvement, except the two here mentioned.

CASE II. A man, aged 25, who for several years had been troubled with a discharge from both ears with occasional attacks of pain. Two weeks before coming under observation he had a severe pain at night in the right ear, which lessened next day when the ear began to discharge a thin white-colored fluid. On the 12th day after the pain began the discharge stopped, and was followed by severe pain in the ear and over the mastoid. For the past eight days he has been unable to sleep on account of the pain low down in the back of the head on the right side. Upon inspection a scanty discharge of

fetid gray pus is seen coming from the right auditory canal; there is bulging of the superior and anterior walls. The tissue over the mastoid were swollen and edematous. On the left side a profuse discharge of greenish pus was coming from the external auditory meatus. The Mt. was destroyed and dead bone could be detached on the posterior and inner walls of the tympanum. There was no mastoid tenderness on this side. The temperature was 98.2° F. His urine had a specific gravity of 1010 and contained one-third albumen by bulk. Operation was undertaken after explaining its gravity. The mastoid was soft and necrotic; the cells contained thick creamy pus and granulation tissue. In removing all of the diseased bone one and a quarter inches of the sigmoid sinus was uncovered from the bend downward. There was no pulsation in the dural wall but on aspiration fluid blood was withdrawn. He rallied well from the operation but on regaining consciousness he complained of pain in the wound region and low down on the right side of the occiput.

His kidneys secreted well but the percentage of albumen kept up. Later he became restless and nauseated. The temperature rose to 103.4° F.; pulse 138; respiration 16 per minute and shallow. The dressings were removed and the exposed sinus found bulging into the mastoid wound. He was again chloroformed and the sinus uncovered to the jugular bulb below and above as far back as the torcular and opened from end to end of the area, evacuating pus, clotted blood and granulation tissue. Free hemorrhage was established below and controlled by packing iodoform gauze into the bulb. By persistent use of the curette and probe the blood stream was established above, allowed to flow for a few seconds to wash away any septic material and controlled by packing gauze against the lumen of the vessel. After controlling the bleeding it was noticed that the dura of the posterior sinistral wall was bulging outward. The dura was slit at its most prominent part and a grooved director passed downward, backward and inward into the right lobe of the cerebellum for about two inches and upon being withdrawn was followed by oozing of fetid pus. On enlarging the

opening with the finger two ounces of pus was evacuated. The cavity was mopped out and lightly packed with iodoform gauze. After regaining consciousness he said he felt better, had no pain. Temperature 101.4° F.; pulse 140. But three ounces of urine were drawn and the albumen was increasing. A few hours later he became restless, then stupid and passed into coma; just before death he had a slight convulsion.

On autopsy no further intracranial involvement was found. The kidneys were in an advanced state of parenchymatous nephritis.

CASE III. A man, aged 30, who five weeks before contracted a severe cold and suffered from acute right middle ear suppuration; when the ear began to discharge pain ceased. After an interval of a few days the pain in the ear commenced again and this was followed by pain and tenderness over the mastoid of the same side. Pain was also pronounced over the right temple and backward over the side of the head to the occiput. Temperature was 102° F. On inspection a profuse purulent, yellowish discharge was seen coming from the external auditory meatus. The superior and posterior walls were bulging into the canal. A mass of granulation could be seen at the lower and anterior part of Mt. The mastoid was opened and dark gray colored pus with little odor found in the antrum. The necrotic bone was freely removed and the sinus exposed for one and a half inches downward toward the bulb from its bend.

Communication was established with the middle ear through the aditus. The bony wall separating the antrum from the middle cerebral fossa was softened and was removed with the curette. The exposed dura looked much darker than usual, so it was opened and a grooved director passed upward and forward between the dura and the brain in the middle fossa. Its withdrawal was followed by a discharge of pus from beneath the dura and on the opening being enlarged the cavity was drained of about four drachms of gray colored pus. Some softened bone at the junction of the superior and posterior auditory canal being removed an opening was found through the vault of the tympanum, showing where perforation had

taken place into the middle fossa. The patient rallied nicely. His temperature on the evening of the operation was 99° F.

Campbell.

On the Retro-Auricular Opening After the Radical Operation for Chronic Middle-Ear Suppuration.

382. PASSOW, Heidelberg. (*Archives of Otolaryngology*, Vol. XXVII, No. 3.) The writer after reviewing the indications and the object aimed at in the radical operation proceeds to describe his methods of procedure. The primary incision begins below, a little above the tip of the mastoid, about 2 cm. behind the insertion of the auricle and extends upward to about 1 cm. above the linea temporalis. The skin is dissected up to the auricle and the periosteum is now incised parallel with and close to the attachment of the auricle. The periosteum is stripped off the bone backward to the primary incision and down to the tip of the mastoid, and then cut away. The upper and posterior walls of the meatus are loosened and drawn forward. The entire field of operation is widely exposed and the middle ear can be entered by Schwartze's, Stacke's or Zaufal's method.

The external meatus, now, is split open as far as the cartilage of the auricle and by a second incision perpendicular to the first, forms from the meatus a large upper flap. This flap is tilted upward and its anterior margin united by sutures, with the anterior edge of the bony wound. The lower flap of the meatus is sutured to the lower portion of the anterior margin of the bony wound. There is next formed a quadrilateral flap, behind the auricle, by carrying the original incision downward and forward about 1.5 cm. and then incising backward and upward to form a flap in accord with the size of the bony cavity. The flap is held in place with sutures and tampon. The retro-auricular opening, which results, is slit shaped and can be covered easily with plaster. With reasonable recovery the cicatrization is rapid, but if the formation of epidermis is slow it is encouraged with skin-grafting.

A large number of authorities close the retro-auricular opening by primary suture but nevertheless one must

abandon primary closure, if by following it, one sacrifices safety.

In deciding on secondary closure, one must in every case weigh the pros and cons and must let the fistula exist too long than too brief a time. Close the fistula from a cholesteatoma, if the skin has remained smooth and free from irritation for six months or possibly a year, in a sensible patient, who will return occasionally for proper examination.

In performing secondary closure, there is made at the outer margin of the orifice, an oval incision. The skin is loosened freely away, together with the periosteum and so made very movable. This results in leaving four margins, two outer and two inner. The two inner margins are turned inward, toward the inner ear, and so sutured that fresh surface lies next to fresh surface. Then the two external freshened surfaces are likewise sutured and drawn together. In this way one covers the retro-auricular orifice with a bridge which is cuticular in both directions.
Campbell.

The Differential Diagnosis of Vascular and Muscular Tinnitus Aurium.

383. RUMBOLD, T. F. (*Laryngoscope*, July, 1898.) The variety produced by alternate contractions and relaxations of the diseased muscles of the middle ear will cease upon the application of an extrinsic sound to the afflicted ear or ears and will remain absent for from five to sixty seconds. The writer has devised an appliance with this end in view and thus differentiates the two varieties.
Loeb.

Surgery in Obstinate Neuralgia of Mastoid Region.

384. SATTLER, R. (*Cin. Lancet-Clinic*, April 23, 1898.) Inveterate neuralgic pain in the mastoid region is frequently associated with and dependent upon distinct pathologic processes, or their remote sequences, in the pneumatic cells and mastoid antrum.

In the case reported there was the most exquisite sensitiveness without redness or swelling over the entire mastoid region, and the case has resisted all treatment except large doses of morphine. A free opening into the attic over the entire mastoid region was made, and the

cells which appeared normal were broken down, the whole region being converted into one large cavity without penetrating to the deeper cells or to the mastoid antrum. The relief was complete.

Scheppegrell.

A Few Clinical and Anatomical Points Relating to the Ear.

385. SHAW, A. J. (*Laryngoscope*, March, 1898.) Mastoids are divided into three classes:

- (1) Pneumatic—Abounding in cells or cell space.
- (2) Diploic—Smaller cell spaces and a partly sclerosed condition.
- (3) Sclerosed mastoid, where the process is solid bone.

Loeb.

Influence of Diseases of the Nares and Pharynx on Aural Affections.

386. SOMERS, L. (*Universal Medical Magazine*, No. 11.) From an analysis of 600 cases of middle ear disease, the author offers the following conclusions:

1. Sclerosis of the middle ear is usually the result of previous nasal or pharyngeal disease.
2. Suppurative otitis media is a common and frequent result of acute and chronic naso-pharyngeal disease.
3. Fully 75 per cent. of all forms of middle ear disease will show on examination, or give a history of, naso-pharyngeal disease.
4. Sixty-four per cent. of tympanic affections are co-incident with pathologic changes, either in the nares or pharynx, or both.
5. Sclerotic or atrophic changes in the naso-pharynx are of little consequence in the production of deafness as compared with chronic hypertrophy, or any morbid change producing congestion of the nose and throat.
6. Of nasal affections, hypertrophy of the turbinals is the most potent factor in the production of aural disease. A deviated septum and an exostosis influence the tympanic cavity by producing changes in the atmospheric pressure.
7. Aural affections are more frequent in hypertrophy of the post-nasal space, or naso-pharynx, than in pure nasal or pharyngeal disease.
8. The effects of passing disease of the nares or pha-

rynix in the production of middle ear disease are of much importance.

9. General disease, such as measles, with local nasopharyngeal manifestations, exert a marked causative influence in the production of middle ear disease.

10. To a great extent the successful issue of aural disease depends upon appropriate naso-pharyngeal treatment.
Scheppegrell.

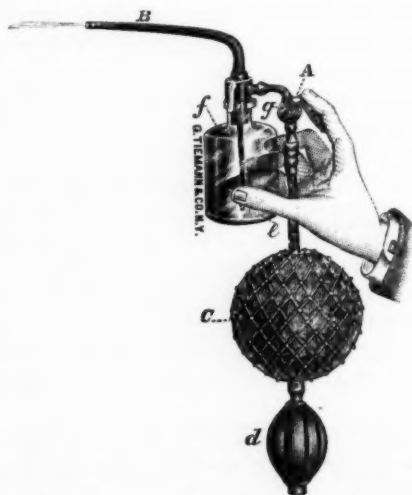
Acute Purulent Otitis Media—Mastoiditis—Pyemia—Death.

387. THOMPSON, J. A. (*Cin. Lancet-Clinic*, April 16, 1898.) There was little pain before perforation of the tympanic membrane, but persistent and severe pain afterward. There was little swelling or tenderness over the mastoid process; the purulent discharge was mixed with blood for at least 10 days. In spite of operation there was a rapid spread of infection to other parts of the body, the metastasis destroying the sight of both eyes.

Scheppegrell.

A New Constant-Current Ear Syringe, or Injector.

388. WANDLESS, H. W. (*Medical Record*, May 21, 1898.) The instrument, which is shown in the adjoining illustra-



Constant-Current Ear Syringe or Injector.

tion, is intended to obviate many of the inconveniences of the ordinary ear syringe.

Scheppegrell.

A Case of Perisinus Epidural Abscess, with Facial Paralysis—Operation—Recovery.

389. WHITING. (*Archives of Otolaryngology*, Vol. XXVII, No. 3.) A girl, aged 15, whose illness began with severe coryza, upon which acute catarrhal otitis media supervened. The Mt. was found reddened and the superior posterior quadrant bulged forward and downward. Very firm pressure over the mastoid elicited signs of tenderness. Myringotomy was done, allowing a small quantity of sero-sanguinous fluid to escape. For the following five days pain in the ear and scanty discharge persisted. On the sixth day there was almost entire relief from pain, and the discharge had ceased. However, on awakening from "an afternoon nap," she became conscious that her right eyelids did not close properly, and that she could not whistle. On the seventh and eighth days conditions remained unchanged. The facial paralysis, perhaps, a little more pronounced.

On the ninth day the writer was called to see her, and found the following condition: The membrana tympani and membrana flaccida were bulging downward and forward sufficiently far to conceal the short process of the malleus. There was a slight sagging of the supero-posterior segment of the membranous canal; a minute perforation in the inferior posterior quadrant of the Mt. could be recognized as the site of the paracentesis wound, and from this opening there protruded a small thread of sticky, plastic lymph, acting as a most effective obstacle to drainage. The mastoid aspect was negative upon inspection, but firm pressure over the region of the antrum and at the tip brought an immediate response as to tenderness.

Operation was advised, and an incision made extending from half an inch below the mastoid tip upward to about half an inch above the temporal ridge. The periosteum was normal in appearance. The cortex appeared healthy, but when the cells were encountered they were found to contain firm granulation bodies—osteoclasts—under whose action the basement substance of the bone was rapidly

being absorbed. Upon opening the antrum there escaped a gush of gas and a few drops of pus, and upon exploring the roof of the tympanum with a probe a small opening was encountered which communicated with the middle fossa, and from which, upon the introduction of the probe, some bubbles escaped but no recognizable pus. The posterior bony wall was cut away, the malleus and incus removed, also the tubercle of the zygoma and tegmen tympani. This procedure resulted in exposing a mass of plastic lymph investing that portion of the temporo-sphenoidal lobe, resting upon the superior surface of the petrous bone, and extending downward and backward into the cerebellar fossa, along the course of the descending portion of the sigmoid sinus.

The lymph at the periphery of the opening in the skull was firmly adherent and tightly sealed off the abscess cavity from the surrounding meninges. The central portion was soft and bulging, and in order to carefully examine the sinus was subjected to gentle traction, when it came off in long sticky strips. The sinus wall was reddened, but it dimpled beneath the finger and pulsated as well. The sigmoid groove was more extensively cut away, so that if any symptoms of septic phlebitis should subsequently arise, the necessary operative procedures would be greatly facilitated.

The mastoid process was removed, and in a large pneumatic space at the tip a dark, odorless fluid of the color and consistency of coffee dregs found.

During the days immediately following the operation the patient was cheerful, and exhibited no symptoms indicative of sinus or other intracranial involvement. The facial paralysis rapidly disappeared, and on the tenth day there appeared to be complete restitution of function.

Campbell.

A Simple Method for Pneumatic Massage of the Tympanic Membrane and Ossicles.

390. WINSLOW, J. (*Medical Record*, July 16, 1898.) The author advises the use of a piece of glass tubing fitted to the patient's ear and connected to a medicine dropper by means of a rubber tube, which is operated by the

fingers of the patient. The author has recommended this plan for 20 years.

[As the results of this method of treatment are not mentioned, it is difficult to judge of its merits. As a rule, however, pneumo-massage should never be placed in the hands of the patient.—Schepppegrell.]

Schepppegrell.

**Report of a Case of Rupture of the Tympanic Membrane
from Indirect Violence.**

391. WOODRUFF, H. W. (*Laryngoscope*, March, 1898.) The extensive rupture in the inferior portion of the drum-head was caused by striking the head violently against a door-knob. The hemorrhage was slight, the edges of the wound were widely separated and in the posterior portion: the cutaneous layer alone was divided.

Loeb.

Phosphor-Necrosis of the Temporal Bone.

392. WÜRDEMAN, H. V. (*Laryngoscope*, February, 1898.) Phosphor-necrosis is much less prevalent now than formerly, on account of better hygienic surroundings in factories, improved ventilation, the vaporization of turpentine, the rigid inspection to which workmen are subjected, and the use of red amorphous, which is comparatively harmless. The disease, which is always chronic, is almost imperceptibly slow in the upper jaw, but in the lower is sometimes acute, and attended by high fever. It begins in the periosteum, and ends in death of the bone. The sequestrum adheres firmly to the underlying bone, becoming incrustated with a pumicestone-like material.

J. J. W., aet. 58, employed in a match factory, complained of pain in the left upper jaw. Two teeth were first extracted, and later all of them, after which he wore a plate. Later pain in the mastoid region appeared, and about January 5, 1895, there was a discharge of foul muco-pus from the ear. About this time he was struck on the left side of the head by a match composition, which covered the side of his face and filled the ear. His mouth was so sore at times that he could not wear the plate. In May, 1895, a sequestrum from the upper maxilla was removed by a dentist, after which he was little troubled.

He was referred to the writer in January, 1896. His face was of a pasty appearance; the left alveolar process swollen and puffy; two fistulous openings on the buccal side, and one in the roof of the mouth; roughened denuded bone; external auditory canal full of pus; decided peritonsillitis, swelling and tenderness over the mastoid region; posterior wall of the canal reddened, swollen and painful to the touch of the probe; granulations at the lower portion of the membrana flaccida, covering a small perforation; temperature 101°.

Two days later (patient having refused immediate operation,) symptoms of septicemia appeared, and under ether the mastoid cells and antrum were opened, and the posterior and superior wall of the canal removed, the bone in the last two cases being found necrosed. Some months later, symptoms having reappeared, a loose sequestrum was found in the sinus back of the ear, so the antrum was again opened, the dead bone removed and a tube inserted for drainage.

In April, 1897, some granulations near the osseous ring of the tympanic attic were removed. In August, 1897, the mastoid was chiselled and drilled open, the external layer being found hard and cancellous, under which was found a pasty mass of necrosed bone, from which exuded greenish fetid pus; the posterior wall, which was soft and friable, was readily removed by the spoon, and as the superior wall had been largely reproduced the triangular piece of bone between the attic and the tympanum was removed, and the granulations taken away from the tympanic attic.

It may be questioned whether the temporal bone disease is of phosphoric origin. It has been shown that abscesses of the upper jaw may discharge through sinuses in the external auditory canal, or middle ear, and this may have been the starting point of the necrosis.

The character of the maxillary disease, and his occupation, leave no room for doubt in the writer's mind that the necrosis of the jaw had its origin in phosphoric absorption. The character of the middle ear and mastoid disease was similar to that of the upper jaw, very chronic in its course, and yielding but slowly and incompletely to

treatment, presenting a contrast to other mastoid cases.

Loeb.

II.—NOSE AND NASO-PHARYNX.

Foreign Body in the Left Nasal Cavity and Sequelæ.

393. BEAUDOUX, H. A. (*Laryngoscope*, May, 1898.) A shoe button was found in the antrum, which was readily penetrated. The anterior two-thirds of the inferior turbinated and a portion of the inner wall of the antrum were easily removed, and the foreign body unexpectedly discovered.

Loeb.

Sprays and Inhalents.

394. BISHOP, S. S. (*Laryngoscope*, 1898.) For cleansing purposes the following solution is advocated:

Acidi borici, sodii bicarbonatis, sodii chloridi, aa. ʒij; glycerine, ʒiij; aquæ rosæ, ʒiv; aquæ q. s. ad oi. For a permanent medicinal effect on the mucous membrane, inhalents should be combined with a purified petroleum oil, which should always be made antiseptic. Camphor, menthol, salol, oil of wintergreen, thymol, aristol, creosote, carbolic acid, oil of tar, pine needle oil and eucalyptol should be added according to indication.

Loeb.

Malignant Tumor of the Naso-Pharynx.

395. BRAULT. (*Annales des Maladies de l'Oreille, du Lar. du Nez et du Phar.*, No. 5, May, 1898.) The tumor filled the whole naso-pharynx, and could be seen through the mouth as well as from the outside of the swollen cheek, and in the nose. During the operation an attack of asphyxia occurred; tracheotomy was performed, and as much of the tumor as possible removed. The tumor was a sarcoma. The child was little relieved.

Holinger.

Cysts and Pseudo-Cysts of the Nasal Fossæ.

396. BRINDEL. (*Rev. Hebdom. de Laryngol., d' Otol. et de Rhinol.*, No. 18, April 20, 1898.) At times every tumor causing a deformity of the nose was considered malignant. This is wrong. Osteoma and cysts often cause deformities. Cysts are not infrequent, but very few have been microscopically examined. There are two kinds of cysts;

extrinsic cysts, growing into the nose from Highmore's cavity, or from the skin, or from the naso-pharynx; intrinsic cysts, originating in the nose. The intrinsic cysts originate from the turbinated bone, or from the septum, or in a polypus. Each cyst can be serous or mucus, or cheesy, according to its contents. The author states that in many reports of cysts no histological examinations are published. Eight observations are described, with a microscopic examination in each case. The symptomatology, treatment and a literary index with 34 references are given.

Holinger.

A Case of Rhinoplasty.

397. CASSIDY, P. (*Medical Record*, April 9, 1898.) An interesting case, fully illustrated, of a patient of 70 years, in which a rodent ulcer was first removed from the nose and the wound covered with a horse-shoe flap taken from the infra-orbital space of the right side, and from the forehead, and twisted and laid on the nose.

Scheppegrell.

Diseases of the Accessory Sinuses of the Nose.

398. CATTLE. (*British Medical Journal*, May 7, 1898.) Catarrh of the mucous membrane with stenosis of the ostium is responsible for the majority of cases, and although cases of dental origin are not infrequent, they are of less importance and quickly recover after the extraction of a tooth.

An opening should be drilled through the canine fossa, enlarged with a chisel, and a counter-opening made in the lower meatus of the nose, the cavity being packed with iodoform gauze.

Scheppegrell.

Diseases of the Eye Dependent upon Diseases of the Nose.

399. CHAMBERS, T. R. (*Medical Record*, April 9, 1898.) In the first case reported the removal of an exostosis of the septum relieving a pain for which the muscles of the eye had been cut several times. In the second case the development of chronic glaucoma was arrested by septal operation, and in the third, choroiditis was aborted by the removal of a necrosed bone from the nostril. In the fourth case, irritation of the eye was relieved by the removal of a nasal polypus.

Scheppegrell.

Rhinitis Fibrinosa, Including a Bacteriologic and Histologic Examination of Cases.

400. CHAPMAN, G. L. (*Medical News*, April 10, 1898.)

In the three cases reported, a careful bacteriological examination was made and showed the presence of staphylococci in each case. In the second case a species of *saccharomyces* was also found. *Scheppegegrell.*

On Ozena.

401. DRS. CHOLEWA AND H. CORDES, Berlin. (*Fraenkel's Arch.*, VIII, 1, 18.) After a historical introduction and a chapter on the histology of the parts concerned, the statement is made that, as in osteomalacia, the cause and origin of the process taking place in the bony tissue cannot be given. Here, also, a tropho-neurosis may be accepted as primary cause. Cholewa states, in regard to the therapeutics of ozena, which is as uncertain as its etiology, that he is in favor of all methods of treatment which spare the mucous membrane, since he believes to have demonstrated the dependence of the alterations in the mucous membrane on the osseous changes.

First of all is Gottstein's method of tamponning, which acts in two directions: (1) In stimulating the glands of the erectile tissue, and (2) in hindering the formation of thick layers of crusts. Both will contribute much toward preserving the function of the mucous membrane if the tampons are only applied correctly; i. e., to the middle turbinal near the root of the nose, not the floor. But this therapy is but symptomatic, and can exert only little influence on the real morbid process. In osteomalacia more active calcification takes place in the bones when they are fractured, either by trauma or muscular action; a regenerative ostitis sets in, which leads to the luxuriant formation of callus and its consequences. In view of this fact, Cholewa breaks the turbinated bones. He denies that this is a rather severe method, as there is hardly any pain and discomfort. This procedure must be repeated at intervals. The reaction is inflammatory, causing a great afflux of blood, not alone to the bone, but also the mucous membrane. Therefore, there is, at first, increased secretion of pus and mucus, although the mucous membrane has *not* really been injured.

The author does not as yet consider himself justified in speaking of "cures" by this method, but recommends it, especially in recent cases. *Morgenthau.*

A Differential Diagnosis of Empyema of the Accessory Cavities of the Nose.

401½. COFFIN, R. A. (*Boston Med. and Surg. Jour.*, March 24, 1898.) In cases in which, after thorough cleansing of the nose, no pus can be seen coming from some special sinus, a differential diagnosis is made by catheterizing or puncturing some cavity in turn. *Scheppegrell.*

Changes in the Turbinated Bones in Connection with Deformities of the Septum.

402. COOLIDGE, A. (*Boston Med. and Surg. Journal*, June, 1898.) Within the nasal cavities nature attempts to maintain slit-shaped channels for the passage of air, to avoid contacts and to keep the air-carrying capacity of the two sides approximately equal. This is done by change in shape of the turbinated bodies to correspond with deformities of the septum.

From this it follows that the question of pathologic hypertrophy or atrophy of a turbinated body must be judged not from its actual size, but from the width of the air passage. A turbinate should be large if it is opposite a concavity in the septum.

In treatment, therefore, the removal of such a turbinate is not indicated, except possibly in connection with operations on the septum. We do not know to what this vicarious change in the size of the turbinated bodies is due.

Scheppegrell.

Phlegmon of the Inferior Turbinated Body, with Necrosis of the Turbinated Bone.

403. DELIE D'YPRES. Communication at the meeting of the French Laryngological Society. (*Rev. Hebdom. de Laryngol., d'Otol. et de Rhinol.*)

Delies speaks about a patient of 35, who had, besides the symptoms of a stopped-up nose, those of facial neuralgia. The jaw was swollen, the nose, the eyes and the lips were closed. The physician thought of an abscess at the root of a tooth. The gums were incised, pus appeared and all seemed to be over, when a new attack brought

the patient to the office of the author. He reopened and probed the old place and found raw bone. This proved to be a sequestrum implicating the whole lower turbinated bone, after the removal of which the patient made a quick recovery.

Holinger.

Chloroform as a Therapeutic Agent in Cases of Invasion of the Nasal Cavity by Texas Screw-Worms.

404. DIBBLE, LEROY. (*Laryngoscope*, February, 1898.) Two cases are reported in which, after chloroform administration, the nasal cavity was washed out with warm carbolyzed water, followed by peroxide of hydrogen. In one case a 20 per cent. solution of cocain was sprayed into the nose for the purpose of reducing the congestion of the mucous membrane.

Loeb.

Foreign Body in Nostril.

405. DEFOUR, C. R. (*Laryngoscope*, March, 1898.) A shoe-button had been the occasion of the following symptoms, which had persisted for over three years: Recurring nasal hemorrhage, occlusion of the nose, and great enlargement of the right side of the nose.

Loeb.

Another Conservative Operation for the Removal of Nasal Synechia.

406. ELLEGOOD, J. A. (*Laryngoscope*, April, 1898.) The operation, which is somewhat similar to that described by Scheppegegrell, consists in encircling the synechia with silver wire, which is tightened every day or two until it cuts its way through the obstruction. Three cases are described in which the operation was successful.

Loeb

A Note on the Etiology of Atrophic Rhinitis.

407. ELLETT, E. C. (*Laryngoscope*, March, 1898.) Two series of cases are reported, two in one family and three in another, in which it is claimed show the different stages of the process of the transition from purulent to atrophic rhinitis.

Loeb.

The Determining Cause of Ulcers of the Nasal Septum.

408. ELLETT, E. C. (*Laryngoscope*, May, 1898.) Functionally inactive organs are prone to degenerate and become the seat of pathological change. The occurrence of

septal ulcer at the site of the rudimentary organ of Jacobson makes it justifiable to hold that organ responsible.

Loeb.

On Some Forms of Adenoid Disease Which Are Often Overlooked, and on Conditions Which May Simulate Adenoid Disease.

409. FARLOW, J. W. (*Boston Med. and Surg. Journal*, April 21, 1898.) Adenoid disease often exists, causing symptoms demanding operation, although mouth-breathing or apparent nasal obstruction are not present. Mouth-breathing may be caused by many other conditions than adenoid disease. Small tonsils with diseased crypts, prone to inflammation, demand attention as well as hypertrophied glands. The specific snuffles of young children may simulate adenoid disease.

Scheppegrell.

Treatment of Prolongation Forward of the Nasal Septum.

410. FARLOW, J. W. (*Med. and Surg. Reports*, Boston City Hospital, 1898.) In prolongation forward of the nasal septum, the extra length causes it to bend forward into the opening of one nostril, thus pushing the fleshy septum to the other side. This causes nasal obstruction, congestion, fissures and execzema of the opening of the nostril, and effects the appearance of the nose.

An incision should be made through the mucous membrane, parallel with the free edge of the septum, the perichondrium stripped back and sufficient cartilage removed.

Scheppegrell.

Hematoma, Abscess and Serous Cysts.

411. GAREL. (*Rev. Hebdom de Laryngol., d'Otol. et de Rhinol.*, No. 25, June 18, 1898.) Only few cases so far are described, yet this disease is very frequent. There are quite a number of synonyms, hematoma abscedens, acute idiopathic perichondritis, erysipelas abscedens, acute phlegmon of the septum, etc. The disease may begin as hematoma, become infected and end as an abscess. The abscess may be idiopathic from the start. Besides, we know that only serous secretion may be formed. A trauma is usually reported in connection with these affections. In one case the trauma was electrolysis, and the author readily puts the cause to lack of antiseptics on the part of

the patient. (?) The closing up of the nose in abscess only occurs five or six days after the trauma. The serous cyst is often very hard to diagnose. The affection does not need to be preceded by trauma. It can be on one or both sides. It may be mistaken for polypus. The treatment should consist in opening the cyst.

Holinger.

The Control of Nasal Hemorrhage.

412. GLEASON, E. B. (*Laryngoscope*, March, 1898.) For the past ten years the writer has used oil for the control of nasal hemorrhage, a plan which follows the suggestion of S. Hayes Agnew that the nose should be plugged with ham fat. Lately he has treated prospective hemorrhage by thrusting a piece of cotton, dripping with a 15 volume of peroxide of hydrogen, along the floor of the nose until the pharynx was touched. The pressure upon the bleeding points is greatly increased by the bulkiness of the clot.

Loeb.

Notes on an Interesting Case of Pharyngeal Polypus.

413. HENDERSON, W. (*Indian Lancet*, June 19, 1898.) The anterior nares were laid open by incising the upper lip in the median line, carrying it from the alae of the nose upward a little away from the median line, with an osteoplastic section in the nasal bone. The tumor, which was found attached to the osseous surface surrounding the posterior nares, was removed with the scissors. No statement is given as to recurrence.

Scheppegrell.

Sarcoma of the Naso-Pharynx, with Report of a Case.

414. HENGST, D. A. (*Laryngoscope*, July, 1898.) J. R., aet. 14, had had for two months difficulty of breathing, difficult and painful swallowing, headache, dullness of hearing, ichorous irritating discharge from the nose, and occasional epistaxis. A semi-solid mass was found filling the rhino-pharynx and bulging forward on the right and left side of the palate. An incision was made transversely from the zygomatic process of the malar bone skirting the lower border of the orbit to its inner and lower angle, and continued downward in the re-entering angle between the nose and cheek, and along the upper lip to the middle line, where it was turned downward, dividing

the lip at its middle. A median incision to the bone was made in the roof of the mouth from the incisor teeth backward, and the soft palate and uvula split in the middle line. After sawing the bone free from its attachment, the superior maxilla was lifted from its bed and turned to the other side, and the growth was cut away with scissors. The jaw was returned to place and held there by buried wire sutures. Twenty-five days after the operation the patient died, although the wound healed promptly.

Loeb.

Unusual Sized Rhinolith Removed with the Lithotrite.

415. HILL, J. F. (*Laryngoscope*, July, 1898.) With a history of twenty-five years' standing the patient, upon examination, exhibited a large grayish immovable mass, nearly filling the posterior nares. The mass, which was crushed by means of a lithotrite, weighed 275 grains.

Loeb.

Empyema of the Antrum of Highmore.

416. HOUGHTON, E. W. (*Laryngoscope*, March, 1898.) The means of diagnosis are transillumination of the face, catheterization of the ostium maxillare, percussion of the teeth, exploratory puncture and examination of the upper teeth. Treatment is accomplished by removal of the cause, evacuation and drainage of pus, antiseptic irrigation and removal of morbid tissue, when present, from the antrum.

Loeb.

An Operation for Correcting Deformities of the Nasal Septum.

417. KEPLINGER, L. (*Laryngoscope*, April, 1898.) In the two cases reported an incision was made over the most prominent part of the septum, the mucous membrane was dissected above and below from the septum, the projection was removed by a Bosworth saw without perforation, and the cut ends of the mucous membrane were united by suture.

Loeb.

An Adenoid Forceps.

418. KNIGHT, C. H. (*Laryngoscope*, February, 1898.) The blades, which are large and well rounded, have extensive and sharp cutting edges, making the forceps cap-

able of rapid execution. The joint is placed well back on the handles, in order that a slight separation of the fingers may insure a wide opening of the blades. *Loeb.*

Chromic Acid and Intra-Nasal Synechiæ.

419. LAVRAND. (*Rev. Hebdom de Laryngol., d' Otol. et de Rhinol.*, No. 27, July 2, 1898.) Lavrand gives as the main cause of adhesions and synechiæ the galvano-cautery. There is a great tendency in cautery wounds to form adhesions. The scabs from chromic acid cautery (chromic acid melted slowly on to the probe,) have not this tendency, because the scabs keep the surfaces apart. It is preferable to use chromic acid for cauterization than to use all kinds of separating material (cotton, gutta serena, zinc, etc.). The scabs do not act as foreign bodies, as the other material. *Holinger.*

The Aix-la-Chapelle Treatment of Syphilis of the Nose and Throat.

420. LIEVEN, A. (*Laryngoscope*, May, 1898.) The patient at 7 in summer, at 8 in winter drinks several glasses of special spring water during a half hour promenade; takes a sulphur bath (75° F.) of 20 minutes; a half hour later rests for a half hour, and then takes breakfast. He then receives daily inunctions of one of the following areas, both thighs, both axillæ, breast and sides, back, both arms. The areas are rubbed for 20 minutes until they are almost dry. The patient is not permitted to bathe the parts anointed, and only those parts which are to be rubbed on the following day should be thoroughly dry. He is directed to wear woolen underwear, which he is allowed to change only once a week. A rest of a half hour follows lunch, and then exercise of two or three hours. At half past five a draught of spring water is taken, dinner follows at 7, and the patient retires at half past 10.

Loeb.

About Diagnosis and Therapy of Chronic Suppuration of the Accessory Cavities of the Nose.

421. LINDT. (*Correspondenz-Blatt fuer Schweizer Aerzte*, No. 5, March, 1898.) The comparative lack of real knowledge and success of therapy in suppuration of the accessory cavities of the nose is stated. A case of combined

suppuration of the different cavities is recorded. The frontal sinus was first operated upon, and later the Highmore's antrum and the ethmoidal cells were found diseased. Although a most thorough cleansing with curette and antiseptic solutions was given, the whole disease recurred a year later. In connection with this attack a great part of the upper roof of the orbit was found to be necrotic. After this very instructive case Lindt gives a lot of practical hints. A simple puncture of Highmore's antrum from the nose is not sufficient for diagnosis; we must always wash out the cavity with sterile salt solution. Furthermore, too much probing does damage. It may, or may not, be advisable to make a connection between the operated frontal sinus and the nose.

About the frontal sinus Lindt gives this advice: If the cavity is large and deep, to make a flap of frontal skin and bone; if it is small and flat to remove the outer table and let the skin retract to fill out the cavity.

Holinger.

An Unusual Case of Stenosis of the Nasal Passages.

422. MACKENZIE, J. N. (*Maryland Med. Journal*, February 26, 1898.) The patient had suffered from a severe attack of diphtheria, which resulted in inability to breathe through either nostril. The cautery had been used with more or less disastrous effect. When first seen, there was almost complete atresia of both nostrils, but the patient was relieved by means of a drill operation. The author concludes by inveighing against excessive surgery of the nose, especially with regard to the electro-cautery.

Scheppegrell.

Galvano-Caustic and Nasal Synechiæ.

423. MONSCOURT. (*Annales des Maladies de l'Oreille du Nez, du Lar. et du Phar.*, No. 5, May, 1898.) The galvano-cautery is often greatly abused, and, especially in the hands of the inexperienced, does great damage. The author reports one patient who 50 times, and another 90 times, had the galvano-cautery applied to the nose. The symptoms of synechiæ are given. The main thought of this paper is a protest against the too frequent use of the cautery.

Holinger.

**Epistaxis as a Symptomatic Complication During a Recent
Dengue Epidemic in Texas.**

424. MULLEN, J. A. (*Laryngoscope*, March, 1898.) Seven cases are reported, all of which were relieved by the use of chromic acid. The hemorrhage, when general, was an arterial oozing from the turbinal and septal mucous membrane; when local, it was confined to the cartilaginous septum and anterior end of the inferior turbinate.

Loeb.

**Secondary Hemorrhage Following the Removal of Adenoid
Vegetation.**

425. PREBLE, W. (*Aust. Med. Gazette*, May 19, 1898.) A girl of 11 years was operated upon for adenoid vegetation, which were removed with forceps and the fingers. The bleeding was not severe, and ceased within a few minutes. The child was feverish the next day, but on the sixth was apparently well and breathed freely through the nose.

On the seventh day, while out for a walk, a sudden hemorrhage occurred, and she was carried into the house in a faint. The hemorrhage ceased under cold syringe. About six hours later the hemorrhage recurred, but was arrested by plugging the posterior nares. The morning of the eighth day, however, there was a sudden gush of blood, and she died before assistance could be rendered. The blood was only partially clotted.

The author finds 21 cases of severe primary, and five of secondary hemorrhage, following adenoid operation recorded in literature.

Scheppegrell.

**A Case of Nasal Syphilis, With Pressure Symytons Simulating
Meningitis.**

426. RICHARDS, G. L. (*Laryngoscope*, May, 1898.) A man, aet 32, suffered from headache and obstruction of the right nostril for four months. A portion of hypertrophied turbinated was removed. While the obstruction disappeared, the headache continued and increased. This disappeared after thorough curettement of the ethmoid and removal of dead bone.

Loeb.

On the Use of Formaldehyde in Atrophic Rhinitis.

427. RICHARDS, G. L. (*Laryngoscope*, May, 1898.) The

nostrils are washed out with a solution of formaldehyde, containing five to ten drops of the 40 per cent. solution to eight ounces of hot water. The crusts diminish, and all unpleasant odor ceases. *Loeb.*

The Texas Screw Worm—Report of a Fatal Case.

428. ROBERTSON, C. M. (*Laryngoscope*, March, 1898.) A man, aet 54, presented the following symptoms: Offensive odor and bloody discharge from the nose, dizziness or staggering when locomotion was attempted, somnolency, pulse 80 and temperature 101°. On the next day the symptoms increased, and on the following day the discharge became more fetid and profuse, and the worms were found in the right anterior nares, and many were removed by means of slender forceps. The patient grew gradually worse, coma appeared and increased until death four days later. *Loeb.*

Importance of Early Recognition of Enlargement of the Pharyngeal Tonsil.

429. SAWYER, F. D. (*Medical Record*, May, 1898.) Early treatment may prevent serious complications.

Scheppegrell.

Chronic Suppurative Ethmoiditis.

430. SOMERS, LEWIS S. (*Journ. Amer. Med. Ass'n*, June 4, 1898.) Acute or chronic rhinitis is probably the chief etiological factor. Mucous polypi are frequently present, and the general health may be affected by septic absorption. Treatment consists in removing all diseased tissue, obtaining free drainage and maintaining asepsis as far as possible. *Scheppegrell.*

Tuberculosis of the Nose, with Report of a Case of Primary Tuberculosis.

431. THEISEN, C. F. (*Laryngoscope*, February, 1898.) The patient, aet 36, was first treated 19 months before for an attack of "grip," and since that time there had been more or less obstruction of the left nostril, with considerable secretion. Previous and family history were good, except in regard to a chancre which had appeared some years before. Examination of lungs, heart and other organs failed to disclose any disease. The left inferior turbinal and septal mucous membrane seemed somewhat

inflamed, and a growth with an irregular surface was observed upon the cartilaginous septum. This was attached by a broad base, was rather firm to the touch, though it was not freely movable. Administration of potassium iodide failed to improve the condition, and seemed to aggravate it. The growth, which was removed by the cold snare, proved to be a granulation growth containing numerous tubercle bacilli. Thereupon the place of attachment was cauterized, and applications of concentrated solutions of lactic acid with iodoform insufflations were made. The process did not extend and no recurrence took place during the year and a half since the operation was performed.

Loeb.

Facial Hemiatrophy, Causing Deformity of the Septum Nasi.

432. THOMPSON, J. A. (*Laryngoscope*, April, 1898.) Since her fifteenth year the patient, aet 30, there has been defective development of the left side of the face. The septum was badly distorted, two operations being required to restore the lumen of the right side of the nose.

Loeb.

A Form of External Rhinitis Due to Klebs-Loeffler Bacillus.

433. TODD, C. (*Lancet*, May 28, 1898.) During the past eighteen months 51 cases of this form of rhinitis have occurred in the London Fever Hospital. In each case the Klebs-Loeffler bacillus was found. The following observations were made:

1. Children convalescent from scarlet fever in hospital are very liable to a certain form of external rhinitis, often accompanied by the formation of secondary pustules on various parts of the body.

2. This rhinitis, though not membranous, is associated with the presence of the Klebs-Loeffler bacillus in the nostrils, this organism being absent from the fauces.

3. It is contagious as such, but has not been observed to give rise to faucial or laryngeal diphtheria.

4. It is unaccompanied by rise of temperature, albuminuria, or marked glandular enlargement.

5. It appears to be limited to children under 13, and is most frequently observed between the ages of 3 and 4.

Loeb.

Contribution to the Study of Nasal Syphilis.

434. VACHER, LOUIS. (*Annales des Maladies l'Oreille, du Larynx, du Nez et du Phar.*, No. 7, July, 1898.) Vacher puts on record three cases of syphilis of the nose. Two of them never had any specific treatment before. Tertiary symptoms are often very uncertain; they follow five to ten years after the primary; they are ulcerations and tumors marked by scabs.

The first patient was for years treated for syphilis continually, when an ill-smelling coryza appeared. Examination showed extensive necrosis of the septum. He got—

| | | |
|---------------------------------|---|---------|
| Bichloride of mercury, | - | 1.0, |
| Salicylate of soda, | - | 2.0, |
| Boiled water, | - | 1000.0, |
| For injection and internal use. | | |

A part of the septum was soon removed. A few months later another sequestrum (25 by 8 by 10 and 20 mm.) consisting of a large part of the base of the skull was removed. Since that time the patient is cured.

The second observation concerned a woman with a large perforation of the soft palate. She had never had any specific treatment. She improved under the same treatment. The perforations of the palate were closed by sutures.

The third case was a boy of 15, who was living in Brazil and had a colored nurse. The nose and the eyes at the examination showed all the symptoms of tertiary syphilis, which disappeared after proper treatment.

Holinger.

Hay Fever.

435. WEAVER. (*Journal American Med. Ass'n*, June 4, 1898.) The author believes the uric acid diathesis to be an important factor in hay fever. Local treatment combined with constitutional remedies to correct this diathesis is advocated.

Scheppegrell.

Mental Disturbances in Turbinate Hypertrophies, or Nasal Stenosis.

436. WOODWARD, J. F. (*Atlanta Med. and Surg. Journ.*, July, 1898. As an illustration of the effects of nasal stenosis on the mental condition, 10 cases are reported, in which

more or less marked mental disturbances, believed by the author to be due to turbinate hypertrophy and other causes of nasal stenosis, were relieved by appropriate treatment.

Scheppegrell.

III.—MOUTH AND PHARYNX.

The Serum-Exanthemata Observed in the Antitoxin Treatment of Diphtheria; Their Pathogenesis and Prevention.

437. BERG, H. W. (*Medical Record*, June 18, 1898.) The cutaneous effects depend upon the quantity, variety, and number of injections. They are more common in hospitals than in private practice. The following groups are considered:

1. Those resembling simple erythema.
2. Those resembling scarlatiniform erythema, (a) without desquamation, (b) with desquamation.
3. Those resembling morbilliform erythema, (a) without desquamation, (b) with desquamation.
4. Those resembling for the most part multiform erythema, which forms the largest group.

These rashes may occur within a few hours after the injection or several weeks after, and they usually last about three days.

It has been shown that injection of pure blood serum from the horse produces an eruption in a large percentage of cases, and that the addition of antitoxin serum does not increase the frequency of these eruptions. The remedy advised is that the antitoxin be so prepared that the necessary quantity may be given in the smallest quantity of serum, and that all horse serum to be used in serum therapy be carefully filtered through the finest Chamberland filter.

Scheppegrell.

Retro-Pharyngeal Abscess Caused by Streptococci in a Child of Thirteen Months.

438. BOUCHERON. (*Rev. Hebdom. de Laryngol d'Otol et de Rhinol*, No. 29, July 16, 1898.) A child of thirteen months had several accidents, and finally on the posterior wall of the pharynx an abscess developed. The glands on the side of the neck swelled and formed an abscess, which was opened and showed streptococci; 1 cc. of serum of

Marmorek a day was injected and the child got well, the pharyngeal abscess evacuated through the opening of the lymph glands.

Holinger.

Macroglossia, Lymphangiectasis of Floor of the Mouth.

439. BRAULT. (*Annales des Maladies de l'Oreille du Lar. du Nez et du Phar.*, No. 5, May, 1898.) Macroglossia, Lymphangiectasis of the floor of the mouth and of the cervico-facial regions, amputation of a conical piece of tongue; results of the lymphangiectasis; presence of pneumococcus, recovery; later result. The patient was a child of seventeen months. All is described above in the heading.

Holinger.

On Some Anatomical Particulars Having Relation to the Pathology of the Lingual Tonsil.

440. LENOX BROWNE. (*Rev. Hebd. de Larngol, d'Otol et de Rhinol*, No. 23, June 4, 1898.) The author gives credit to Escat for his good work on the lingual tonsil. He adds to it some new points. The pharyngeal and palatal tonsil stop growing at the age of 20, the lingual tonsil does not. There are only a few cases reported of hypertrophic lingual tonsil in children. We find proofs of regressive metamorphosis in the pharyngeal tonsil, never in the palatine or lingual tonsil. The lingual tonsil may even have crypts. The varicose veins at the base of the tongue may be seen in children, and are not signs of disease of the lingual tonsil. A symptom of hypertrophy of the lingual tonsil is pharyngeal tenesmus. Catarrhal inflammations and phlegmons are rare in the lingual tonsils. Diphtheria never has its primary location on the lingual tonsil. Scarlatina and syphilis rarely locate there. The use and abuse the voice is a great factor in producing chronic hypertrophy of this region. There is no more danger of hemorrhage in using the lingual tonsillotome, than there is in dealing with this organ in any other way. The varicose veins at the base of the tongue are not entirely without danger. The author describes a disease called varicose pharyngitis. The symptoms are plethora and spitting of blood with or without coughing. Lewin described this disease in 1865. Lennox-Browne describes a case of lymphoma, and a case of fibroma of the lingual tonsil. Malignant neoplasms of the lingual tonsil are frequent. The writer mentions epithelioma and

lymphosarcoma, and describes cases. A case of lupus was cured with 60 per cent. of lactic acid. A case of lepra gave no result.

Holinger.

Tracheotomy in Diphtheria.

441. CALDWELL, C. E. (*Cinn Lancet-Clinic*, April 30, 1898.) In a case of diphtheria in a four year-old child with dysphagia, intubation was unsuccessful, as the tube was repeatedly dislodged. The symptoms appearing urgent, rapid tracheotomy was performed, the child making a successful recovery.

Scheppegrell.

A Case of Removal of the Left Half of the Tongue for Epithelioma after Preliminary Ligature of the Lingual Artery.

442. DAVY, T. G. (*Aust. Med. Gazette*, April 20, 1898.)

The operation was successful, and there had been no recurrence at the time the report was made.

Scheppegrell.

Method of Operating for Small Epithelioma of the Lip.

443. DOWD, CHAS. N. (*Medical Record*, March 26, 1898.) In spite of the favorable conditions in epithelioma of the lip, the mortality is large. Of 290 cases reported, 66 had the lower lip involved. The removal of the growth from the lip should be accompanied by the excision of a good-sized wedge of tissue. A large piece may be removed without producing an unsightly deformity. The submaxillary cases should be carefully explored and all diseased lymphatic glands removed.

Scheppegrell.

Report of an Unusually Severe Case of Diphtheritic Paralysis Which was Followed by Complete Recovery.

444. FLITCROFT, W. T. (*Medical News*, May 28, 1898.) The patient, eight years of age, suffered from a malignant type of diphtheria for which 200 units of Mulford's antitoxin were injected. The child appeared to improve, but on the third day there was a sudden hemorrhage, a pint of blood being lost before it could be arrested. Six weeks afterward paralysis developed, first involving the left eyelid, later, in rapid succession, the right eyelid, the muscles of deglutition, and finally the lower limbs.

The child became frightfully emaciated, and was fed by means of a stomach tube introduced through the nose in addition to rectal feeding.

The author believes that without the antitoxin this pa-

tient would not have lived to develop paralysis, and that had the treatment been instituted earlier, recovery would have promptly followed the initial dose, and paralysis would have been prevented. *Scheppege*rell.

On the Treatment of Certain Forms of Cervical Lymphadenitis by the Introduction of Medicinal Substances into the Crypts of the Faucial Tonsils.

445. GOODALE, J. L. (*Boston Med. and Surg. Journ.*, May 19, 1898.) From a series of investigations on the subject of tonsillar absorption, the following conclusions were obtained:

1. Absorption exists normally in the tonsils, and takes place through the mucous membrane of the crypts.

2. The path of the absorbed substances is in the inter-follicular lymph channels in the direction of the larger fibrous trabeculae at the base of the organ.

3. During the process of absorption, foreign substances encounter phagocytic action on the part of the polynuclear leucocytes situated in and adjoining the mucous membrane.

4. Bacteria are normally present in the crypts, but are not usually demonstrable in the tonsillar tissue proper.

5. In view of the preceding facts, the supposition appears possible that bacteria may be continually making their way into the tonsillar tissues, but at the moment of entering encounter conditions which terminate their existence.

These facts demonstrate that a bacterial invasion from the mouth is possible. In the same manner, the normal tonsillar absorption may be applied in the treatment of chronic angular lymphadenitis. The method is as follows:

Three or four drops of a 10-per-cent. aqueous solution of iodine or other medicament are drawn into the syringe through the canula. The patient's tonsils are brought into view, a crypt is selected and the distal end of the canula introduced as far as it will go. The fluid is expelled into the lumen of the crypt and the canula withdrawn. The other crypts are then filled in order, the injections being usually repeated on the third or fourth day.

In the majority of cases treated by this method, a marked change in the glandular swelling occurred, and in a few

others, which were apparent as suitable for the application of this method, no alteration resulted. *Scheppegrell.*

Electricity in Acute Tonsillar Inflammation.

446. KEELER, E. E. (*Journ. Electro-Therapeutics*, June, 1898.) The application of the electro-cautery is recommended, the point being carried into each inflamed crypt.

[Acute inflammation of the tonsil is one of the strongest contraindications for the use of the electro-cautery in this region.—*Scheppegrell.*]

Three Cases of Acute Miliary Tuberculosis of the Pharynx.

447. KICER, GOTTLIEB. (*Laryngoscope*, Feb. 1898.) CASE I.—F. P. aet. 6 years, was admitted to the hospital suffering from bilateral pneumonia, and was confined to bed for four weeks. After this, respiration grew progressively worse, the patient being compelled to assume a sitting posture. Examination showed general redness of fauces, pharyngeal and laryngeal mucous membrane injected and swollen, vocal bands normal, infiltration of subglottic membrane, cervical glands swollen, axillary and inguinal glands slightly involved, rough bronchial inspiration sound and almost inaudible, expiration sound.

Inferior tracheotomy was performed, and two weeks later superior tracheotomy. When the tube was removed two weeks later respiration was easy and free. Three weeks later patient complained of pain in the throat and difficulty of swallowing, and of nasal respiration. After this, rapid emaciation ensued, frequent night sweats followed, while the pharyngeal mucous membrane became studded with miliary tubercles. A similar condition was found developing in the laryngeal mucous membrane, accompanied by deep infiltration, which continued to spread. Autopsy exhibited miliary tubercles in both lungs, bronchial glands swollen, and caseous, the interior of the larynx a continued ulcerated surface, the soft palate ulcerated throughout with deep infiltration. Miliary infiltration and tubercles were found in the spleen, liver and kidneys.

CASE II. R. L. aet. 55 years, bricklayer, with decided phthisical family history; symptoms on admission to hospital were painful deglutition, emaciation, profuse night sweats. Numerous miliary tubercles were found upon the

soft palate and uvula, appearing in confluent masses in some points and with beginning ulceration. The same were found upon the posterior wall of the pharynx and and rhinopharynx. To the touch the soft palate was firm, thickened, and the elasticity of the tissues destroyed. The larynx was almost normal, the voice natural; there were no cough, no expectoration and practically no physical signs. Difficulty of swallowing increased, aphonia developed and patient soon died. Upon post-mortem examination, both lungs were found infiltrated with miliary tubercles, the mucous membrane of the trachea, larynx and pharynx in the greater part ulcerated, ulcerations spreading over the tonsils and soft palate, tubercles in other organs.

CASE III. C. W. aet. 23. When 16 years of age had a severe cough. Emaciation has been great during past two months. The palate and lateral wall of the pharynx were the seat of miliary infiltration, and a large ulcer was observed upon the left tonsil. Although at that time the larynx appeared normal a week later the epiglottis, entire laryngeal mucous membrane and aryepiglottic fold were much infiltrated. Difficulty of swallowing and all symptoms increased, and pulmonary edema supervened in two months. No post-mortem was permitted.

Loeb.

A Case of So-called Recurrent or Chronic Abscess of the Soft Palate.

448. KING, G. (*Laryngoscope*, April, 1898.) The patient aet. 38 had had six years before a severe tonsillar inflammation, which subsided upon the discharge of pus. No further attack occurred until August, 1897, when he was taken with a similar seizure. After ten days of great suffering an incision in the palate was made by his physician but no pus was evacuated. Three or four days later there was spontaneous rupture and discharge of pus. While the acute symptoms subsided there remained a constant annoying sensation in the throat accompanied by the discharge of a small quantity of pus. Two months after the attack the writer found a fistulous tract leading from near the middle of the anterior pillar on the right side upward and backward to the supratonsillar fossa. Application of chromic acid to the tract was twice made with no

result. Cure was effected by laying the entire tract open by means of an electrocautery knife and biting forceps.

Loeb.

Transillumination in the Diagnosis of Sinus Disease.

449. KNIGHT, C. H. (*Laryngoscope*, July, 1898.) The transmission of light may be obstructed, not only by a thickened mucous membrane, but also by bony septa subdividing the cavity, exostosis projecting into it, unusual thickening or distortion of the bony wall. Diminution of light may be occasioned by deficient resorption of the maxillary bone and increase results from excessive resorption, and according to so from mucocoele and cyst of the antrum. The writer's conclusion is that with ordinary care the proportion of cases in which the light test may prove delusive is extremely small. An antrum filled with pus must be opaque. Almost the only chance for error is in the case of an asymmetrical skull, of which the larger antrum contains a small quantity of pus. The evidence furnished by the transillumination must be regarded as corroborative rather than conclusive. He protests against explorative puncture as a diagnostic measure, and against the adoption of the usual methods of surgical interference in all cases of empyema.

Loeb.

Bucco-Lingual Leucoplakia, Coexistence of Psoriasis of the Tongue and Skin.

450. LACOEARRET. (*Rev. Hebdom. de Laryngol, d'Otol, et de Rhinol*, No. 28, July 9, 1898. This affection has different names: leucoma, leucoplakia, smoker's patches, opaline patches, buccal leucoplakia, leucokeratosis, etc. The author draws the following conclusions: Leucoplakia is sometimes the result of a simple inflammation of the mucous membrane after different irritations. Sometimes it is the expression of an arthritic or herpetic diathesis. Smoking, syphilis and alcohol are named as irritants. In the second case we have a chronic state which is similar to psoriasis of the skin above mentioned. Furthermore, pressure from teeth, and strongly spiced foods, are causes that throw a more than normal sensitive mucous membrane into these conditions.

Holinger.

About the Non-Interference of the Facial Nerve with Paralysis of the Soft Palate.

451. LERMOYEZ. (*Annales des Maladies de l'Oreille, du Larynx, du Nez et du Phar.*, No. 6, 1898. In the text books this mistake is still very frequently met. Pathology admits wrong theories and builds other theories on them. The irritation of the facial nerve does not produce contractions of the soft palate; the palate only reacts from the vagospinal nerve. The paper is very carefully worked out.

Holinger.

Oropharyngeal Mycosis.

452. LINCOLN, R. P. (*Medical News*, April 30, 1898.) The leptothrix buccalis predominates in the morbid product, and it is not improbable that, as the soil has become favorable by a certain degree of inflammation, the spores of the leptothrix, which seem to be always present in the mouth, find lodgement in the mucous crypts and develop more rapidly than under ordinary circumstances, and that these bundles with their products, though other fungi may be associated with them, constitute the disease.

The treatment should be radical; all the deposit must be destroyed and the surface from which the leptothrix develops changed. The electro-cautery is useful in such cases. Pyocetanin is also recommended. Scheppegrell.

Glossitis in Typhoid Fever.

453. MCCREA. (*Journ. American Med. Ass'n*, July 2, 1898.) This is the first case observed in a series of 700 cases of typhoid fever at the John Hopkins Hospital. It occurred during convalescence from the original attack and ushered in a relapse. The case was mild, and diminution of the swelling followed rapidly after free incision.

Scheppegrell.

A New Soft Palate Elevator.

454. MAHN. (*Annales des Maladies de l'Oreille, du Lar. du Nez. et du Phar.*, No. 6, June, 1898.) The instrument consists of a tube in which a fork-like wire is movable. It is self-retaining.

Holinger.

For What Period of Time can Immunity from Diphtheria be Conferred by a Single Injection of Antitoxin.

455. MORRILL, F. G. (*American Medico-Surgical Bul-*

letin, June 10, 1898.) Immunity in any given case, of no matter how thorough exposure to diphtheria, may be conferred for at least 10 days by the injection of a small dose (100 to 250 units) of serum, provided it is given 24 hours previous to actual infection.

A larger dose (250 units for a child of two years up to 500 units for one of eight years or over) will confer safety for three weeks, or, to be more conservative, 20 days under similar conditions.

No harm will result from the treatment in the vast majority of cases of sick children, and probably in no case of a healthy child, provided the serum used is up to the present standard of purity.

Scheppegrell.

Sudden Death from an Immunizing Dose of Antitoxin.

456. NIFONG. (*Medical Review*, May 7, 1898.) The author reports a death following the injection of an immunizing dose of diphtheria antitoxin. The patient, a lad of 15 years, of slight build and poor circulation, after exposure to diphtheria, complained of sore throat. The tonsils were slightly enlarged and the throat was red. He was given an injection of between three and four cubic cms. of antitoxin, strength 1500 units. Two girls were given similar injections from the same bottle, without any bad results whatever.

Ten minutes after the injection, the boy became pale, complained of numbness of the extremities; later, he became cyanosed, his face swelling; he vomited freely.

An injection of nitro-glycerin was given and artificial respiration resorted to, but death followed 35 minutes after the antitoxin had been administered. The fluid used was furnished by the city chemist of St. Louis. *Scheppegrell.*

Supratonsillar Fossa as the Starting Point of Infection.

457. PATTERSON, D. R. (*Laryngoscope*, July, 1898.) In the development of the parts about the pharynx, we have the arcus palatoglossus formed from the second visceral arch. The palate growing as a fold from the upper jaw crosses this arch, as well as the corresponding second cleft, and divides it into an upper and lower part. The remains of the cleft above the palate forms the fossa of Rosenmüller; below the palate lymphoid tissue develops,

forming the tonsil, and the remainder of the cleft at the upper part constituting the supratonsillar fossa. The part of the tonsil uniting the fossa shows an arrangement of structure which differs somewhat from the rest of the gland, the lymphoid tissue being in a very loose, open net-work which contrasts with the compact structure of the lower part of gland. The crypts and lacunæ are large and open freely, communicating with each other. The secretion from the lower crypts of the tonsil is forced upward into these, and becoming aggregated into caseous matter readily undergoes decomposition. The most frequent local inflammations resulting from infection are those of the tonsils. Sometimes the attack may be aborted by removing the caseous mass from the fossa, and cleansing it out with carbolic acid. In two cases of lacunar tonsillitis following intra-nasal cauterization, the attack began in the upper part of the tonsil as if it spread from the fossa, which contained in each case a cheesy mass. In peritonsillitis the fossa is involved, and its anatomical relations make it probable as the source of infection. The cellular tissue in contact with any part of the fossa is liable to infection, and inflammation may, therefore, be set up at various points. Septic pharyngitis frequently starts from the fossa, and in all possibility Senator's inflammation may originate likewise. Pharyngomycosis spreads from this space, and a favorite starting place for tuberculosis is in and around this fossa.

Loeb.

Chancroidal Tonsillitis with Ulcers and Membranes, Caused by Spirils and Bacilli of Vincent.

458. RAULT, (*Rev. Hebdom. de Laryngol. d'Otol. et du Rhinol.*, No. 30, July 23, 1898.) A rare affection of the tonsils is described, which looks most like a primary chancre or a secondary syphilitic affection, and really has been mistaken for it. The author names a number of writers who described the same or similar conditions. On one, rarely on both tonsils, a flat ulcer is noticed covered with grayish, white membranes. The membranes can not at first so easily be removed as later on. The ground of the ulcer becomes necrotic and forms a new membrane with some red granulations, (in one case even the whole tonsil was necrotic and had to be removed.)

The expired air has a fetid odor. The submaxillary glands usually are not swollen. This is important on account of the differentiation from chancre. The patient has usually no fever but feels simply tired. The diagnosis has to consider besides primary and secondary syphilis, diphtheria. In this however, the general, as well as the local conditions are widely different. The course of the disease is very slow, often taking several months. It must be confounded with herpes or cancrum. The bacteriologic examination reveals spindle shaped bacilli and spirils. The author compares them with other forms, but cannot make up his mind where really to classify them. The treatment of the disease is equally difficult. The best results were obtained with formaldehyd 6 to 10 drops in 20,0 glycerine for swab. Four cases are described. Three were in medical students. The authors think that they look into their throats oftener than other people, and therefore come oftener to the specialist.

Holinger.

The Non-Operative Treatment of Diseases of the Upper Respiratory Tracts.

459. SCHEPPEGRELL, W. (*Laryngoscope*, July, 1898.) The writer, while realizing fully the good results obtained from operations, maintains that the necessity for radical measures is present in but a small minority of cases. In nasal obstruction, unless it is sufficiently great to reduce the breathing on the affected side fifty per cent., an operation is rarely demanded, unless required by the condition of the other nostril. Even coryza, according to some, requires surgical treatment. A more successful plan in a spray of guaiacol in albolene, 2 per cent. and the administration of 10 grains of quinine in two doses at intervals of ten hours. Overcauterization in hypertrophic and intumescent rhinitis is a serious abuse. While cauterization is admissible in hyperplasia, it is seldom required in intumescence. Ozena is to be treated with cleansing solutions followed by topical applications, sprays, massage, electrolysis and serum therapy. In disease of the accessory sinuses surgical measures means are almost imperative, yet conservatism is not out of place. For nasopharyngeal catarrh a proper douche for cleansing the nasopharynx is advocated. Even in hypertrophy of the phar-

yngeal and faucial tonsil the *laissez faire* plan is a good one unless the indications positively point to surgical interference.

The nose and throat specialist should avoid the tendency of becoming narrow in his views, and of seeing the patient only through the nasal speculum and laryngoscopic mirror, but he should devote much thought to general medicine.

Loeb.

Xerostomia--Mouth-Dryness.

460. SHARP, A. J. (*British Med. Journal*, May 7, 1898.) An unmarried woman of 41 years suffered from mouth-dryness to a marked degree, the symptoms developing suddenly 18 months before the patient came under observation. The only neurotic history obtainable was that of coccygodynia, which had been cured. There was no urinary disorder nor any sign of caroditis or pressure on the salivary apparatus.

Reference is made to a table of 19 recorded cases by Frazer, from the Edinburg Hospital reports of 1898.

Scheppegrell.

Intubation in Diphtheria.

461. SIMPSON, W. K. (*Medical News*, March 19, 1898.) A careful description of the advantage and technique of this operation.

Scheppegrell.

The Innervation of the Muscles of the Soft Palate.

462. TURNER, W. A. (*Laryngoscope*, July, 1898.) The three steps in the history of the innervation of the muscles of the soft palate may be summarized as follows:

1. From the trunk of the facial nerve through the vidian and large superficial petrosal nerves to the sphenopalatine ganglion, and thence by the posterior palatine branch of the soft palate, a view no longer maintained.

2. By the accessorius vagi nerve to the trunk of the pneumogastric, and then by the pharyngeal branches to the pharyngeal plexus and soft palate.

3. From the lower end of the nucleus ambiguus through the lower vagal roots to the pneumogastric nerve trunk, reaching the soft palate by the pharyngeal branches and the pharyngeal plexus.

The last is the view upon the origin and course which receives much report from recent investigation.

The conditions under which palatal palsy may be met, are:

1. Diseases interfering with the nucleus ambiguus, (a) chronic bulbar paralysis, in which is found a progressive bilateral degeneration of the nerve cells; (b) tabes dorsalis, a state in which the degeneration of the nucleus may be on one or both sides; (c) syringomyelia, characterized by new growth formation extending upward into the medulla oblongata and involving the nuclei of the nerve root.

2. Implication of the nerve root between their emergence from the side of the bulb and their exit from the cranium through the jugular foramen. The causes of this are numerous, but are chiefly meningeal, e. g., syphilitic and malignant affections.

3. From the pressure of malignant, tubercular or other growths deeply in the neck upon the bunch of the vagus before the pharyngeal branches are given off. *Loeb.*

Latent Tuberculosis of the Tonsil.

463. WALSHAM, H. (*Lancet*, June 18, 1898.) In 20 out of 34 consecutive post-mortem examinations held at the City of London Hospital for Diseases of the Chest, tuberculosis of the tonsil was found present. From this circumstance, and by reason of the experience of other investigators, the writer draws the following conclusions: (1) that the tonsils, instead of being almost immune from tuberculous disease, are very frequently affected; (2) that tubercle may be primary in the tonsil; (3) that the tonsils are very frequently secondarily affected in persons suffering from chronic pulmonary tuberculosis; (4) that when the tonsils are tuberculous, the cervical glands receiving the lymphatics from the organs are also frequently affected with tubercle; (5) that the follicular glands at the base of the tongue are rarely found tuberculous; (6) that the tonsil may be affected from without or through the bloodstream in acute miliary tuberculosis. *Loeb.*

The Rapid Diagnosis of Diphtheria by the Koplik Method.

464. WATSON, W. T. (*Maryland Med. Journal*, April

2, 1898.) Koplik has found that a bacteriologic diagnosis of diphtheria may be positively made within $2\frac{1}{2}$ to 3 hours. The method depends upon the principle of forcing the growth of the bacillus during the first $2\frac{1}{2}$ to 3 hours at the most favorable temperature, 38 degrees cent.

In certain instances, a diagnosis of diphtheria is made by this method, which would be impossible in the ordinary way, for where there are few diphtheria bacilli and many streptococci in the culture, the bacilli outgrow the cocci in the first few hours, but later are overgrown by the streptococci. The culture medium used is the Loeffler blood serum, such as is furnished by our health department.

A simple incubator may be used, care being taken to keep the temperature at 38 degree cent. At the end $2\frac{1}{2}$ to 3 hours, according to Koplik, the colonies can be distinguished on the surface of the serum with a magnifying glass. The whole surface should be scraped in a longitudinal direction with a platinum loop, and the scraping smeared on a cover glass, stained and examined in the usual way. The author has been able to diagnose four cases of diphtheria in 5 hours, two cases in $4\frac{1}{2}$ hours, one in $3\frac{1}{2}$ hours, and one case in 3 hours. *Scheppegrell.*

Remarks on Pharyngeal Mycosis.

465. WRIGHT, J. (*Laryngoscope*, April, 1898.) The spores of the fungus, and even the mycelium threads are nearly always present in the buccal or pharyngeal cavity; the growth of the germs to such dimensions that the mass is visible to the naked eye, follows an unknown change occurring in the climate or soil of the mouth. The crypts in the lymphoid structure are the most favorable seats for their growth, but they find other breeding places such as carious teeth. The treatment consists in destroying the crypts and putting the teeth in good shape, and if these fail, a change of climate is advisable. *Loeb.*

Concerning the Absorption of Foreign Bodies Through the Tonsils, and its Relation to the Development of Infectious Processes.

466. X. (*Journ. American. Med. Ass'n*, June 18, 1898.) A reference to the investigations of Dr. Goodale, the results of which are stated as follows:

Absorption occurs normally through the mucous membrane of the tonsils.

The absorbed materials pass in through the follicular lymph spaces in the direction of the larger connective tissue septa.

During the absorption, the foreign bodies are subjected to the phagocytic action of the polynuclear leucocytes.

Bacteria normally present in the lacunæ are not as a rule found in the tonsillar tissue.

Bacteria that may enter the tonsillar tissue would seem to be destroyed very soon after entrance.

It would also appear that acute lacunar tonsillitis is most frequently caused by the absorption of irritating toxins through the mucous membrane of the crypts, in which the bacteria grow as if in a test-tube. *Scheppegrell.*

IV.—LARYNX.

A Case of Laryngectomy.

467. BELL, J. (*Montreal Med Journ.*, May, 1898.) A patient of 65 years was found to be suffering from epithelioma. Low tracheotomy was first done and afterward the entire larynx removed. The patient made a good recovery. *Scheppegrell.*

Treatment of Hoarseness in Singers and Speakers.

468. BOTTOME, F. A. (*Journ. American Med. Ass'n*, July 2, 1898.) In hoarseness not due to abnormal conditions of the nose and naso-pharynx, the most common cause simple acute laryngitis, the result of undue exposure. In these cases local treatment should be avoided, and constitutional methods, such as hot mustard foot-baths, calomel, aconite, etc., should be administered. Cold may be applied to the larynx, and perfect rest enjoined.

A sudden accumulation of mucus on the vocal cord may be treated by inhalations. Cases of temporary paralysis of the vocal cords sometimes occur. Singer's nodules are frequently due to vicious methods of singing, and the correction of this and systematic exercise form the best treatment. *Scheppegrell.*

Contributions to the Diagnosis and Treatment of Laryngeal Cancer.

469. OTTO KAR CHIARI (Vienna.) (*Fraenkel's Arch.*, VIII, 1, 66.) While the laryngoscope is of the greatest importance, the histological examination of a small piece of growth is of much value: a positive result is a certain factor in favor of the diagnosis of cancer, but a negative one is not unequivocally against it. The histologist may err in diagnosing cancer when it is not present. The section may have been made obliquely whereby cancer nests are made to appear in the midst of connective tissue, while one is really dealing with normal prolongations of epithelium which reach into the depths and appear isolated in oblique sections. Horizontal sections made near the surface are still more apt to lead to such errors. Then, the diagnosis of cancer may not be made if the operator removes only pieces from the infiltrated connective tissue, or papillary vegetations from the neighborhood of the neoplasm. Finally, it must not be forgotten that mixed tumor occasionally occurs. A case is on record in which the diagnoses were successively made of granuloma, fibroma, angio-sarcoma and, lastly, sarcoma, while it was really carcinoma. Once epithelioma was thought to be present on the evidence of the histological examination, while the larynx after extirpation proved to be tuberculous. However, the author cites a few cases to show that the histological examination of pieces removed for that purpose is, after all, the most trustworthy aid to diagnosis. In one the suspicion of cancer seemed well founded because of the irregular development of the epithelium, of the variety of the single epithelial cells, of the appearance of large vascular spaces covered by the epithelium (a point in the differential diagnosis between pachydermia and carcinoma upon which Klebs has laid great stress), in addition to the numerous relapses following so closely upon each other and occurring in the same spot. Nevertheless, repeated operations resulted in a complete cure after eleven years.

In Case II, that of a nun 56 years of age, there were papillary, partly ulcerated vegetations on an infiltrated base, with infiltration of the apex of one lung. As the sputum did not show any tubercle bacilli the growth was extir-

pated. After a few pieces had been removed, epithelial carcinoma was recognized. The patient had been hoarse for nine years, so that it may be assumed that cancer had formed gradually on the basis of tuberculous vegetations in the larynx. An autopsy was not made.

In regard to the *differential diagnosis between papilloma pachydermia, tuberculosis and syphilis*, the author has drawn some most valuable deductions from observations made in his own cases. Against papilloma serve as points of differentiation the facts that, even if the pedicle is missing, they are attached superficially and never penetrate into the depths of the tissue. Infiltration and swelling of the matrix must be interpreted in favor of cancer; especially, too, the mobility of the vocal cord is not affected with a benignant papilloma, while the contrary usually holds good in carcinoma. Relapses occurring after endolaryngeal extirpations, are common with both the benignant and the malignant papilloma, but they take place very often in other locations than the one first affected. Furthermore, benignant papilloma recurs generally slowly; papillary cancer, quite rapidly.

Benignant papilloma is generally harder and more poorly supplied with blood, while the papillary cancer generally is softer and more succulent, so that its removal is attended with much greater bleeding. Finally, it must not be forgotten that cancer may later on develop from benignant, and that benignant papillary growths may be found in the neighborhood of an already developed cancer. *Pachydermia* generally is easily recognizable from its typical location, as it is usually on the vocal process (generally on both sides), while cancer begins but very rarely on the vocal process or on the interarytenoid fold. Rapid growth speaks for cancer. The mobility of the vocal cords, however, may suffer in both diseases quite early. The histological examination is, unfortunately, not always of decisive value, as the luxuriant proliferations of the epithelium in pachydermia may confuse if the sections are not made with great care. In one case pachydermia existed beside cancer. The decision may be most difficult when the pachydermia is situated in exceptional places, instead of at the posterior ends of the vocal cords (Case VI.). A

man of 52 had been rather hoarse for nine months. Beneath the left ventricular band, far in front, there was a white tumor of the size of a bean on a reddened base, partly covered by the ventricular band. The later moved freely. The opinions of the laryngologists were divided. He refused to have the growth removed for histological examination. Later on, laryngotomy was done. It proved to be pachydermia. The tumor started from the floor of the sinus of Morgagni. Carcioma can be differentiated from syphilis only with great difficulty sometimes. The early syphilitic manifestations are sufficiently characterized by their superficial location and relatively rapid course by the presence of other eruptions on the skin and pharyngeal mucous membrane. It is otherwise, however, with the late syphilitic forms, the gummatous tumors and ulcers; for circumscribed, round tumors and more diffuse infiltrations occur in syphilis and in cancer. In both they incline to break down; in both perichondritis may be present.

If ulcerations do not yet exist, which are quite characteristic (carcinomatous ulcers having irregular, uneven margins, and cauliflower vegetations quite often in their neighborhood; while the margins are smooth and even in syphilis) the diagnosis may be quite difficult, since one avoids extirpating syphilitic infiltrations even partially. In such cases anti-syphilitic medication alone is of assistance. It has, however, often been noted that iodide of potassium causes cancerous infiltrations, too, to decrease in size, probably at the expense of the surrounding inflammatory swelling. But this seeming retrogressive metamorphosis is known to continue only a short time; after awhile the treatment does not affect the size of the growth. In Case VIII, the infiltration of the left arytenoid cartilage which had already begun to break down, decreased markedly after mercury inunction, so that the ulcer even appeared clear and much smaller, and the dyspnea which was brought on by the fixation of both arytenoid cartilages, became much less, and the right vocal cord moved a little outward. This great improvement lasted for more than a month, and yet the disease was shown to be carcinoma.

In regard to therapy, the author has been taught by his experience that *laryngeal cancer is capable of cure in many*

cases, and that therapeutic nihilism is altogether out of place. It is well known that this form of cancer attacks the lymph glands comparatively late, especially in intrinsic cancer. Naturally, a permanent cure may be expected only when the disease is in its incipiency. Radical methods of operation are indicated. More advanced cases, moreover, should not be left without treatment since removing the stenosis very often renders life longer and easier. Nor is it unjustifiable, when radical extirpation is impossible, to remove single portions of the neoplasm which are of particular annoyance; thus not only lessening the pains, especially in swallowing, but also prolonging the patient's life in rare cases. A patient was kept alive by Krieg for four years by repeated endolaryngeal removals of recurring carcinomatous masses, because she could not be induced to submit to an external operation. There seem, therefore, to be cases in which the cancer is not so very malignant. Nevertheless, the author advises a *radical operation as soon as the diagnosis of laryngeal cancer is established*, while complete removal of the cancerous tissue is possible, and the patient is strong enough for such, often quite serious, operations. As long as the cancer is situated within the cartilaginous structure, the outlook for complete cure by operation is quite promising. The neighboring lymph glands are usually not affected then. Extrinsic cancer, which involves the epiglottis, the ary-epiglottic folds, and the arytenoid cartilages, is less favorable because of the early implication of the lymph glands. Even in such cases permanent cure has been obtained by operative measures. These are either endolaryngeal or external. Tracheotomy is either only a preliminary act to the external operation or only a palliative against the dyspnea.

Endolaryngeal Extirpation. This method is of the utmost importance as an aid to diagnosis, in supplying pieces for histological diagnosis. It is usually innocuous, as it generally does not stimulate the growth. There are cases in which, to be sure, the cancer has been said to have grown more rapidly after an exploratory excision; but Fraenkel has shown that the growth of the laryngeal cancer is fitful, that it remains stationary often for many weeks, and then suddenly begins to spread. After 28 ex-

cisions, the author never perceived increase in the growth of the neoplasm but once. In this case the epithelial carcinoma which had involved only the free portion of the vocal cord had spread much farther back five days after the probatory excision. This should, therefore, be followed by the radical operation as soon as possible. In *inoperable cases* excisions of cauliflower vegetations in the interior of the larynx which obstructed breathing and swallowing, were often made, with no important or dangerous hemorrhage and with benefit to the patient. For the *radical* extirpation with forceps, double curettes, cold or galvanocautery snare, the endolaryngeal method has been employed quite early. Sendziak collected 32 such cases, in which complete cure was proven in 12.5 per cent; i. e., more than three years after the operation. In two of them relapses occurred, calling for another endolaryngeal operation. In one case a carcinomatous lymph gland was removed later by a surgeon, the larynx remaining quite free. Relative cure, lasting from one to three years, was noted three times; relapses three times; eleven cases were not observed long enough. The author confesses that he was not so fortunate. A patient operated on in 1897 seemed free from recurrence for five months, dying suddenly in an epileptic fit. In Case III, complete cure did not result. According also to Semon and others, permanent success is very rare. The endolaryngeal operation is only indicated in benignant, not diffuse forms, especially if they are limited to the vocal cords, and only when the patient can be kept under surveillance in order to remove any recurring diseased portion at once. As the malignancy cannot be recognized accurately even on histological examination, and complete extirpation by mouth can rarely be done, the endolaryngeal method should be employed only exceptionally.

Thryotomy. The author reports the results of his five cases, in three of which he operated himself. In the first (in which Billroth operated in 1889) the left vocal cord was removed. Recovery was prompt; the canula was removed on the eighth day; the voice was loud and strong. In 1893 tracheotomy had to be performed on account of increasing stenosis of the larynx without recurrence of the disease.

In 1895 it again appeared in the larynx, and in 1896 the lymph glands became enlarged; death in 1897. Here the cure lasted six years, when the cancer recurred, showing time cannot be definitely stated when a cure is to be accepted as permanent. One patient (operated on by Von Hacker) died on the fifth day from heart failure. The three others (operated on by the author) rallied from the operation; one has remained cured for more than three years; one, for two years; and on the hitherto healthy vocal cord of the third appeared, one year after the operation, a carcinomatous vegetation, which had to be removed lately by another operation. The great advantages of this method are that it is relatively devoid of danger, that the results as to cure are good, and mainly, that the voice is preserved, and swallowing possible without the necessity of a canula. The functional result is of great importance. One patient was able one year after the operation, and is still able, to lecture before societies; his larynx looks quite normal, there being a beautiful membrane-like cicatrix in the place of the excised vocal cord. The operation is, however, only promising when the cancer is in its incipiency, and limited to one or the other vocal cord, while the rest of the larynx is perfectly free. The operation itself is preceded immediately by a tracheotomy. Billroth and the author prefer a Trendelenburg tampon canula; others, Hahn's sponge canula. The former can be more easily disinfected, while the latter is difficult to sterilize, and when left in situ for one or two days it becomes filled with secretions from the wound which are apt to decompose. Butlin and Semon, for this reason, remove the canula definitively at the end of the operation after carefully stopping the hemorrhage; it also guards against infection of the air passages from the dropping of the secretions, and against asphyctic attacks from the shifting of the iodoform gauze. The author generally replaced the tampon canula with a common canula after packing the larynx with iodoform gauze. The iodoform gauze was packed into a sack made of gauze, to keep it from slipping down. It is quite advantageous, after splitting the thyroid cartilage, to paint the interior of the larynx with a cocaine solution, so that the violent attempts to cough and to gag stop, and the soft parts may be removed with ease.

Pharyngotomia Subhyoidea. This operation is only adapted for the cases in which neoplasm is situated either on the epiglottis, the ary-epiglottic folds and sometimes, in addition, on the base of the tongue. Sendziak collected eight cases, in five of which death resulted. Semon pronounces the operation easy, but must also report a fatal issue in his case. A man of 45 (Case XVI) consulted the author in September, 1897. There was a whitish, irregular tumor of the size of a walnut in the right pyriform sinus, originating seemingly from the right arytenoid cartilage; the latter, however, and the partly obscured right vocal cord were still freely movable; the tumor occupied, too, a part of the right ary-epiglottic fold and seemed to extend to the cricoid cartilage; voice and breathing were unimpaired. Parts excised proved to be carcinomatous. The operation was preceded by a high tracheotomy and a simple canula introduced; the base of the epiglottis was severed transversely, and then a vertical incision made through the skin at the junction of the thyroid cartilages. The right one of the three-cornered skin flaps thus formed was dissected off; the larynx was then turned to the left, the right upper corner of the thyroid cartilage bitten off, and the pharyngeal constrictors separated from the right thyroid cartilage. Then the larynx was drawn to the left and downward, and its lumen packed with iodoform gauze. On removing the right arytenoid cartilage with the ary-epiglottic fold, it was seen that the posterior pharyngeal wall was also occupied by a tumor, which was extirpated. The larynx was packed, the incision in the glottis closed by deep stitches, that in the skin by deep and superficial ones. In the external angle of the wound room was left for iodoform gauze. The view of the territory involved was good, and the extirpation done easily. The wound healed well. The patient was fed by a tube which was introduced into the oesophagus when wanted. The tampon was taken out of the wound after ten days. The canula was removed later, and the patient learned, with some difficulty, to swallow solid and liquid food, could go out, and felt quite well. Laryngoscopically, the epiglottis appeared drawn to the right; the glottis wide; the voice was good. In January, a small nodule developed on the ex-

terior surface of the right thyroid cartilage; later on the left plate. Both increased in size. The right ary-epiglottic fold was replaced by a grayish tumor, which encroached on the glottis, necessitating tracheotomy in March. In April the patient looked well, the larynx was broadened and adherent to glandular swellings on the right side. The patient can swallow only liquid food, must always wear the canula, and cannot speak above a whisper.

Pharyngotomia Laterals. This operation is indicated only when the *arytenoid cartilages* or the *ary-epiglottic folds*, *epiglottis*, or possibly the *tongue* at the same time, are affected. It was performed by Gussenbauer on a diabetic patient of the author's. June 17th, 1896, an incision was made from the angle of the left jaw to the middle of the thyroid cartilage, and the transverse incision above the hyoid bone. After ligating the lingual and several smaller arteries, the lateral pharyngeal cavity was accessible; the tumor was easily exposed. The surrounding tissues were ligated en masse and the tumor removed. A strip of gauze was introduced and the wound sewed, the Trendelenburg canula remaining for three days. In the laryngoscope the right half of the larynx appeared free, and the left vocal cord freely movable. As the patient could breathe freely on closing the tracheotomy opening the canula was definitely removed. To the 24th the condition of the patient was good; the tube was always introduced without discomfort to feed him. On this day, however, breathing and pulse were accelerated. The wound in the neck, which was partly agglutinated, began to separate and to show diphtheritic deposits. The patient died in coma on the 27th, the sugar in the urine being 3 per cent.

Laryngotomia Transversalis. The operation devised by Gersuny consists in splitting the thyroid plates by a horizontal incision a little above the attachment of the vocal cord, and in then pulling apart the two parts of the larynx in order to obtain a good view of the interior of the larynx. It has rarely been performed.

Partial Resection of the Larynx. The results of this operation in the twelve cases observed by the author were: One patient was still completely cured two years after the operation; three died five, six and ten days later from

hemorrhage from the carotid or delirium tremens or pyemia; one died one month later from fetid pleuro-pneumonia; one was discharged cured after two months without being heard from again; one died one year later from pneumonia, without suffering from recurrence. Recurrence set in five times, generally in the first two months. In these cases of rapid recurrence the cancer was usually very diffuse, so that, in several cases, nearly the whole larynx had to be removed. The glands, too, were generally involved.

Complete Extirpation. Statistics show that the results are better as the date of the operation is more recent, because of the improvements in the technique. The author reports one case, operated on by Hacker. The patient was completely cured, wore the artificial larynx already; but a recurrence set in in the glands of the neck. Another operation could not stop the progress of the disease. (Case IV.)

Morgenthau.

Partial Resection of the Larynx.

470. CISNEROS (*Revista de Medicina y Cirugía Procticas—O Sligo Medica*, Madrid, May 29, 1898.) reports a successful case in a physician 50 years of age. The patient had been aphonic since July, 1897; no medicine helping him, he submitted to an operation. He was a tall, robust man, with no bad ancestral or personal history; lungs sound; the only symptom was the loss of voice, and even this would not have worried him were it not that his professional work demanded a good voice. The laryngoscope showed a reddish tumor occupying the left vocal cord extending to the ventricular band of the same side and paralyzing the cord. Externally there was nothing abnormal, nor was respiration or deglutition impeded. A small excised piece of the tumor showed (by Ramon y Cajl) that it was an epitheloma.

On January 13, 1898, he was operated on, and the left half of the larynx was extirpated. Recovery was uneventful.

Hale.

Syngomyella with Gravé Laryngeal Troubles.

471. DRAULT, A. (*Annales des Maladies de l'Oreille du Lar. du Nez. et du Phar.*, No. 5, 1898.) Laryngeal

troubles are very rare in syringomyelia. A woman of twenty-two had large anesthetic and hyperesthetic areas and had besides suffered from great dyspnea for which a complete paralysis of the dilators of the glottis was found responsible. She had moreover incomplete paralysis of the soft palate. Quite a number of other symptoms of syringomyelia were absent. Still the author insists upon his diagnosis.

Holinger.

Obstructive Laryngeal Affections and their Influences upon Chloroform Anesthesia.

472. GARDNER, H. B. (*Lancet*, June, 1898.) It is contended by the writer that the fear of giving an anesthetic to patients suffering from any form of laryngeal obstruction is groundless. On the contrary, the majority of such patients pass through the anesthesia remarkably well and the element of asphyxia produced by a partial mechanical obstruction of some weeks duration is of positive value in the production of safe anesthesia. In support of his position a report is given of the following cases in which chloroform was administered: Double abductor paralysis of the vocal cords, multiple papillomata of the larynx, epithelioma of the larynx, tuberculous disease of the thyroid cartilage.

Loeb.

Two Cases of Laryngeal Stenosis.

573. GOMEZ, F. VÁSQUEZ (*Gazeta Medica de Mexico*, April 15, 1898.), two cases are reported:

1. Girl of 15 years, who had had small pox eight years ago, and subsequent attacks of pneumonia and nasal catarrh. All functions now normal except phonation which was growing quite bad. Laryngoscope shows cicatricial adhesions between anterior edges of vocal cords half way across. An attack of asphyxia drove the patient to submit to an operation of tracheotomy, which was followed two weeks later by gradual dilatation of the larynx by Schötler's and Brown's instruments. Result, complete success; closure of tracheal wound and normal phonation.

2. Woman of 38, with cicatricial syphilitic adhesions between nearly the whole extent of vocal cords. No signs of secondary syphilitic lesions. Tracheotomy was per-

formed and gradual dilatation. This, with active antiluetic treatment, cured, and normal phonation was secured after closure of tracheotomy wound. *Hale.*

Foreign Body in the Air Passages.

474. GOUGENHEIM, Lombard. (*Annales des Maladies de l'Oreille, du Larynx, du Nez, et du Phar.*, No. 6, June, 1898.) Foreign body in the air passages, removed by tracheotomy. Recovery.

A man of 40 inhaled, in sleeping, a plate with one tooth. The plate was seen below the vocal cords and removed by tracheotomy. *Holinger.*

The Removal of a Foreign Body from the Trachea.

475. HORN, A. J. (*Journ. American Med. Ass'n*, July 16, 1898.) A boy of 12 years suffering from rapid breathing and a hacking cough, gave a history of having swallowed a pin sometime before. A low tracheotomy was performed and the point of the pin found at the bifurcation and head of the left bronchial tube, from which it was removed by long forceps. The patient made a complete recovery. The X-rays were used in this case three times without locating the pin.

[A metallic substance, such as a pin, furnishes the best material for examination by means of the X-rays, and the lack of success in this case must have been due to some defect in carrying out the method. Scheppepegrell.]

Scheppepegrell.

Classification of Voices.

476. JOAL. (*Rev. Hebdom. de Laryngol. d'Otol. et de Rhinol.*, No. 20, May 14, 1898.) Amongst the singers of each sex there are three groups of voices. In man, are tenor, barytone and bass. In woman, soprano, mezzo-soprano, and contralto. Up to the present time it was only for the professor of singing to classify the voices of his scholars. The author thinks that a great number of errors could be avoided if the teacher would combine with his own the advice of the laryngologist who could base his own judgment on the examination of the vocal cords, the resounding cavities and apparatus, as well as on the power of respiration. Joel founds this assertion on 20 years of experience, and believes that a great number of

spoiled voices might be saved. The author gives a great number of names of singers some of whom had a very small range of their voices, while others, especially ladies, had an extremely large range. Among the tenors he distinguishes strong tenor, tenor of the opera, and tenor of the comic opera. He gives the peculiarities required of each voice and the roles in the different operas calling for it. The same of barytone and bass. He distinguishes a singing bass and a noble bass and gives the range of each.

The soprano voices are divided into light soprano and dramatic soprano, and the roles suitable for each are mentioned as well as the names of different singers who well filled those roles. The same plan with the range and extension of voice is given for mezzo-soprano and contralto. For classification the range of the voice is secondary to the sound (timbre). The author protests against the tendency of many professors of singing to make something else out of the voices of their scholars than what they are; they ought to merely educate the voice itself. He names a list of singers who have been wrongly classed. After this the main points are given which are directive for Joal in classing the voices. He considers not only the length of the vocal cords, the larynx, the pharynx, etc., but adds to that the general appearance of the person. The external characteristics of tenors are: the nose is small, the face is flat and square, neck short and strong, the body round, little marked, more of a female type, the genitals are moderately developed, the capacity of the thorax rather small. The bass is the opposite in every way. The barytones are between these. The spirometric examinations are important. For female voices similar points are brought up. At the end several instances are given where the voices were misclassified, which error was corrected by the laryngologist. *Holinger.*

Intubation in Membranous Croup.

477. LEDBETTER, S. D. (*Laryngoscope*, April, 1898.) Of forty-eight cases eighteen ($37\frac{1}{2}$ per cent.) recovered. Of the eight antitoxine cases five (62.5 per cent.) recovered. *Loeb.*

Nitroglycerin in Spasmodic Croup.

478. MARSHALL, G. G. (*Atlantic Med. Weekly*, May 28, 1898.) The author has found in nitroglycerine an ideal remedy for spasmodic croup where steam inhalations and emetics fail, or where they depress too much to bear repetition. He recommends it to be given in small doses frequently repeated. To children from five to ten months old he gives from one ten-hundredth to one six-hundredth of a grain, repeated in from five to ten minutes if no effect is noticeable. Usually in ten minutes there is marked relief in the dyspnea and general appearance of the child. By repeating these small doses from every fifteen minutes to once in one to three hours, the laryngeal spasms are controlled. Sometimes it is not necessary to repeat it oftener than once or twice; at other times the remedy has to be continued at more or less frequent intervals for two or three days. *Scheppegrell.*

Laryngeal Vertigo.

479. MULHALL, J. C. (*Laryngoscope*, March, 1898.) A man, aet. 47 years, presented the following conditions: Florid complexion, phlegmatic temperament, pulse 90, a trifle irregular, small and compressible, urine acid, specific gravity 1029 and loaded with phosphates, flesh soft and flabby, chest narrow, abdomen large and pendulous. He presented what the writer calls hypernutrition, indulging in meat three times a day, eggs in abundance, large quantities of bread and potatoes. His bowels moved five or six times a day, but the total quantity was not more than one full action. Since he was seven years of age, he had been subject to a winter cough which was paroxysmal and followed by the ejection of a small amount of white viscid sputum. The vertigo appeared in October or November, 1895. In December of that year he had a severe attack in which his respiration seemed to cease while he became unconscious. Three further attacks occurred that winter. For three months previous to consulting with the writer, he had almost daily attacks of cough followed by unconsciousness. The attacks are described as beginning with the appearance of a peculiar indescribable facies, eyelids dilated, eyeballs rolled upward while he becomes dull and listless. After a full

minute or two, the patient indulges in three short dry coughs, each lower in pitch than the preceding one, followed invariably by unconsciousness. He ceases to breathe, his face becomes bluish-red, his whole body becomes somewhat rigid and after five to twenty seconds a long inspiration concludes the attack. There has never been an involuntary cry, escape of urine, biting of the tongue, convulsive movement or previous laryngeal or sublaryngeal tickling. Acting upon the writer's theory that uric acid explosions were the cause of attacks, he was put upon anti-lithemic treatment, consisting largely of rigid diet, cold friction to the skin, calisthenics and the substitution of manual labor in the open air for a certain amount of intellectual work. After ten weeks he had only two daily movements of the bowels, his asthma disappeared, his cough, which was fifty per cent. better than it had been in twenty years, lost its dry paroxysmal nature, the sputum being ejected without effort. There had been no laryngeal attacks for eight weeks. The following year no attacks appeared.

The writer considers that the first phenomenon is central, most probably a vaso-motor spasm about the respiratory center and that it is the central irritation which causes first the laryngeal tickling or short, dry coughs and then the glottic spasm as well as that of the great abdominal muscles. The insensibilities follow instantly the glottic spasm and cannot, therefore, be due to the cerebral turgescence caused by intra-thoracic pressure. In this case at least the uric acid streams about the vagus centers in a man suffering from nervous exhaustion were responsible for the attacks.

Loeb.

A Contribution to the Endolaryngeal Treatment of Laryngeal Carcinoma.

480. DR. NOLTENIUS, Bremen, Germany. (*Frankel's Archiv.* V, III, 1, 128.) The patient, a man of 59, had been operated upon twice within three years, by the author, for a recurring polypus on the right vocal cord, a little in front of the vocal process. On his return, a tumor was found which was irregular and merged into the surrounding tissue. More of it was removed with Landgraf's double curette and sent to the Pathological Institute of

the University of Göttingen, where it was pronounced carcinomatous. Encouraged by the brilliant results reported by B. Fraenkel (Ibid, VII, 362) the author concluded to deviate from his usual practice of referring laryngeal carcinomas to a surgeon for partial or complete extirpation of the larynx, and to attempt the removal of the growth by the natural passage. This was done nearly completely by entering with Landgraf's double curette several times, on November 30, 1898. The hemorrhage was slight and did not hinder the patient from walking to the private clinic shortly afterward. Ice applied internally and externally stopped the bleeding entirely within a short time. In two more sittings the same instrument was used, until the whole mass seemed to be removed (altogether weighing about one gramme). The hemorrhage was so slight on the last day that the author remarked it to his assistant. The patient left the office in good condition after expectorating some bloody sputum. Half an hour later the author was called to him in great haste. He had either expectorated or vomited large masses of mostly coagulated blood, while loud tracheal rales could be heard from afar. It immediately became evident that a violent secondary hemorrhage must have set in, the blood flowing down the trachea which was still partially anesthetized by the cocainization. It appeared too risky to try laryngoscopy while the pulse was so poor and the breathing so labored. Application of ice, both internally and externally, and an injection of ergotin, into the neck diminished the flow of blood, but it was apparent that the trachea and larynx must be opened, in order to reach the bleeding points and to guard against asphyxia. Dr. Sattler split the trachea and larynx, and removed the large blood coagulated from the trachea by suction by means of a thick rubber tube. This relieved the respiratory embarrassment at once. As source of the bleeding two excavations of the size of a split pea were found in the region of the completely removed right vocal cord, two dark red streams flowing continuously down the trachea. No spurting artery could be discovered. A canula was introduced, and the interior of the larynx packed with sterilized gauze. The patient did so well for

two days that the canula could be removed. During the night, however, the pulse rate increased and the breathing became difficult. In the morning he suddenly died. The larynx was examined post-mortem at Göttingen, whence a report was made: no vestige of carcinomatous disease could be discovered, nor microscopically or macroscopically any cause for the severe hemorrhage. The author expresses his conviction that this is not an instance of the transition of a benignant to a malignant tumor, but that the growth was cancerous from its incipency. His case proves, however, that it is possible completely to extirpate a carcinoma by endolaryngeal methods, although he cannot now endorse Fraenkel's statement, that the operation is devoid of all danger. *Morgenthau.*

The Nervous Fibres of the Larynx which Preside Over the Functions of Respiration and Phonation.

481. ONODI, Budapest. Translated by Jankelevitch. Read before the academy of science of Budapest. (*Rev. Hebdom. de Laryngol. d'Otol. et de Rhinol.*, No. 17, April 23, 1898.) In the introduction to this paper the author states that the nerves directing the dilators of the glottis lose their faculty of electric excitation and conduction before the constrictors of the glottis. Other authors confirmed this. A number of anatomical investigators succeeded in anatomically isolating the different fibres. The recurrent never can be divided in a lateral and medial branch. The first one gives branches to the lateral muscles and the thyro-arytenoid, the second to the crico arytenoid posterior and the transversus.

It is, however, very difficult to isolate the respiratory and phonatory branches. The stem of the recurrent nerve contains, besides fibres controlling contraction and dilatation, fibres which go to the trachea and esophagus, and others which come from the sympathetic and the nervus, laryng. sup. The researches have been made on the ox, the dog and man. In the ox the isolation of the different fibres in the stem of the recurrent nerve is difficult, but the branches give the condition very plainly. The fibres of phonation only are glued to those of respiration. Yet the fibres of phonation alone form the plexus, not those of respiration. In dogs the recurrent nerve runs to the

tracheal part of the sup. laryngeal nerve. They are loosely connected and the laryngeal nerve sends very fine branches to the trachea. Toward the larynx conditions are more complicated. The author gives more explicitly the conditions in men and in horses. In the horse two facts have been proved: 1. In the trunk of the recurrent and vagus there are isolated fibres for respiration and phonation. 2. There are very close relations between the respiratory fibres with the sympathetic and heart fibres. Semon saw the nervous fibres for respiration and those for phonation proceed separately from the nervous centers to the larynx. This fact has been experimentally confirmed by Russel and anatomically by the author. The electric irritation of the branches which communicate between the brachial plexus and the sympathetic nerve, and the region between the upper thoracic and lowest cervical ganglion, produces a median position of the corresponding vocal cord. The author will try to find out the physiologic value of these anatomical facts.

Holinger.

Paralysis of the Left Recurrent Laryngeal Nerve in Mitral Stenosis.

482. OSLER, W. (*Maryland Med. Journal*, June 4, 1898.)

Two cases of paralysis of the left recurrent laryngeal nerve are reported in which there was absence of aneurisms but well marked signs of mitral stenosis.

Scheppegrell.

The Importance of the Roentgen Rays in the Diagnosis of Intra-Thoracic Tumors of Interest to Laryngologists.

483. ALBERT ROSENBERG, Berlin. (*Fraenkel's Arch.* VIII, 1, 1.) As little as the Roentgen rays have realized the expectations of their importance in laryngeal diseases, especially in the differentiation of malignant growths in that region, of as much value do they prove to the laryngologists in the cases in which intrathoracic growths cause stenosis of the respiratory and alimentary canals, and paralysis of the vocal cords. The full reports of twelve cases are preceded by some general remarks. On the fluoroscope are seen the vertebral, or rather sternal shadow, which is about three or four centimeters wide, and usually that of the aorta to the left of the sternum above the pulsating shadow of the heart. Sometimes the latter reaches

but little beyond the right sternal margin. These relations correspond with those described in Luschka's classic: "The organs of the human thorax, and their position." They are, however, only the result of the averages drawn from many varieties and subject to individual difference; a factor to be considered in regard to the pulsating aortic shadow. The density of the shadow varies, being, according to the general acceptance, in proportion to the specific weight of the tissue which cannot be penetrated by the rays; so that, for instance, lymphomata, which are of lesser specific weight, throw a less intense shadow than, for instance, a carcinoma of the same thickness. This is, to be sure, not an absolute rule without exceptions, but the combined result of observations. Of course, an intense shadow may be made within a lymphoma shadow by calcifications in the interior of the growth. The shape of the shadow is of greater diagnostic significance.

In aneurysma a characteristic shape is seen, namely, a nearly round shadow, corresponding to a section of the periphery of a circle or of an ellipse, and pulsating *in all directions*. This last qualification will guard against some mistakes, as shown later on. In cases of solid tumors, however, such as those of the mediastinum, the shapes differ; generally there is a shadow bounded by rather straight lines, or irregular shapes; never, or hardly ever, one as round as in aneurysma, from which is distinguished, moreover, by absence of pulsation in all directions.

Oesophageal tumors are usually seen under the sternum and are generally noticeable because the sternal shadow is enlarged to one side or both. In retrosternal goiters the shadow moves upward in the act of swallowing. In one case a pulsating shadow seen to the right and left of the sternum aroused a suspicion of aneurysma, but post-mortem a carcinoma of the oesophagus was found, with the aorta somewhat enlarged cylindrically. If, namely, tumors in the posterior mediastinum compress the aorta from the front and rear, stasis and dilatation set in; producing on the fluoroscope, an enlargement of the aortic shadow, which pulsates on both sides of the sternum. *Patency of Botalli's duct* shows enlargement of the shadow corresponding to the aorta. Aside from the rarity of this anom-

aly, the clinical manifestations lead to the diagnosis. It is hardly necessary to warn against mistaking the *respiratory movements* of the thorax for pulsations, the outlines of the aortic shadow seeming to change their relations to the shadow of the ribs, or, rather, vice versa. It is best to have the patient take a deep inspiration and then hold his breath, because the respiratory movements are thus excluded and, furthermore, a better and clearer view is thus obtained as the lungs are inflated and the ribs farther apart. Pulsations can naturally be seen more perfectly on the fluoroscope than on the photograph, because the vessel which is enlarged in the diastole is not exposed as long on the latter, but interrupted always by the systolic pause. On it, therefore, the systolic contour is seen as an intense shadow while the diastole is marked only quite faintly. The thorax must be examined both from the front and the rear, and sometimes also from the sides. When the patient faces the Roentgen apparatus a growth situated near the anterior thoracic wall appears much larger on the fluoroscope placed on his back than when he stands with his back to the apparatus. Thus the shadow of an aneurysm occupying the ascending or concave part of the aorta appears larger and distincter on the back because it is situated closer to the anterior than the posterior wall of the thorax. The actinoscopic examination may conflict with the results obtained by our common method. The areas of dulness do not at all always tally with the shadows. So the Roentgen ray may enlighten us in cases where aneurysms of the thoracic aorta cause stenosis of the greater air passages and as a result lobar pneumonia, indurative pneumonia, etc., the dulness of which complicates considerably the diagnosis of aneurysm. The cases reported are five of aneurysm, two of retrosternal goiter, three of retrosternal tumor or mediastinal tumor, and two of carcinoma of the esophagus.

Morgenthau.

A Case of Congenital Web Between the Vocal Cords, Associated with Coloboma of the Left Upper Eyelid.

484. SEMON, FELIX. (*British Med. Journal*, May 28, 1898.) Congenital webs between the vocal bands are rare. More commonly the webs are acquired, traumatism and syphilis being the most usual causes. The origin of this

congenital malformation is still shrouded in considerable obscurity; the views of Roth, however, seem the most plausible. He showed that in the period of embryonic development, the upper part of the air-tube is glued together. The milder cases, those in which there are no respiratory affections and no alteration of the voice, require no interference. On the contrary, however, when there is total loss of voice, and persistent paroxysmal dyspnoes, surgical intervention is almost imperative. The selection of a mode of treatment will depend upon the thickness of the diaphragm, the patient's age and power of co-operation, and the tendency to readhesion during the process of removal.

From the satisfactory results obtained in the case reported, Semon recommends that the intra-laryngeal method should be given a trial before recourse to thyrotomy. The growth may be removed with Mackenzie's cutting-forceps, or, as in the case reported, by puncture with the electro-cautery.

Scheppegrell.

Tuberculous Laryngitis.

485. Sisson, E. O. (*Medical News*, April 9, 1898.) In primary tuberculosis of the larynx there are found in the mucous membrane, singly or in groups, small roundish nodules, sometimes attaining the size of a pin-head. In secondary tuberculosis of the larynx there is first a stage of infiltration followed by ulceration.

In regard to treatment, the application of lactic acid to the ulceration, with or without previous curetting, as suggested by Heryng and Krause, has met with much favor among laryngologists. Paramono-chlorphenol has been found useful by Hedderich. Hajek recommends insufflation of iodol. Scheppegrell has introduced cupric cataphoresis, and reports one case cured and many benefitted by this method. Tracheotomy is to be recommended only in cases in which life is threatened by laryngeal stenosis.

From a study of existing literature, the following conclusions are submitted:

1. That to the microscopic investigations in tuberculous laryngitis, and to them alone, is due the present thorough knowledge of its pathology.

2. That no one line of treatment can be laid down at the present time.

3. That there is too great a tendency on the part of the medical profession at large to place this disease in the list of incurable affections, and to use only palliative treatment, and not take the interest that they should in the reports from the few untiring investigators, who, in the face of apparently insurmountable obstacles, are endeavoring to find some cure for this dreaded malady.

When the progress which has been made thus far is considered, we are justified in predicting that the time is not far distant when laryngeal tuberculosis will take its place in the list of curable diseases.

Scheppegrell.

Notes of Two Cases of Foreign Bodies in the Air Passages.

486. SWIFT, H. (*Aust. Med. Gazette*, April 20, 1898.) In the first case, a child of two years while playing on the floor was suddenly seized with a violent fit of coughing with signs of dyspnoea. The mother believed that the child had swallowed a piece of bone or meat. A tracheotomy was made but failed to find the foreign body. On the fifth day the child developed an acute dyspnoea, which proved fatal.

At the post-mortem a small screw was found just above the tracheotomy wound.

The second case, a child of three years, had inspired a piece of nut shell. Tracheotomy gave negative results. A tube was inserted and the foreign body was afterward expelled through the wound.

Scheppegrell.

Acute Subglottic Laryngitis in Grippe.

487. PAUL TISSIER. (*Annales des Maladies de l'Orielle, du Lar. du Nez et du Phar.*, No. 5, May, 1898.) In grippe several forms of laryngitis are known; hyperemic, catarrhal, hemorrhagic and fibrinous. Furthermore, paralysis of some groups of muscles of the larynx is reported. The swelling of the mucous membrane even required tracheotomy. Usually a more simple treatment brings relief. Absolute rest, hot applications and steam inhalations with some drops of chloroform are recommended. *Holinger.*

Foreign Bodies in the Air Passages.

488. VERCO, J. C. (*Aust. Med. Gazette*, May 20, 1898.)

A child of three years had inspired a watermelon seed, which produced a strangling cough and dyspnoea. The trachea was opened, and with the first violent cough the seed was expired.

The second case, a boy of three years, also inspired a watermelon seed. Tracheotomy was refused, and after suffering from the symptoms of obstruction and tracheal irritation for five months, the seed was expelled in a fit of violent coughing.

The third case, a woman of 27 years, suffered from fever and a severe cough. For a long time all therapeutic agents proved unavailing, until finally the patient coughed up a tooth, which had evidently existed in the air passage for twelve weeks. It had apparently lodged in one of the smaller tubes going into the lower lobe of the right lung, and had excited a local pleuro-pneumonia.

The fourth case was a woman of 39 years, who had inspired a tooth while under nitrous-oxide anesthesia. The patient soon developed signs of consolidation of the right lung. Three weeks afterward, the tooth was coughed up. The patient, however, continued to grow worse. There was an abundance of muco-purulent sputum of a fetid odor, and she evidently succumbed to suffocation, following the flooding of her bronchi with pus from the bursting of a collection of matter either in her lung or pleural cavity. *Scheppegrell.*

Papilloma of the Epiglottis.

489. WATSON, W. T. (*Maryland Med. Journal*, March 19, 1898.) The patient, a girl of 16 years, was examined and a large warty-looking mass was seen, projecting from the posterior surface of the epiglottis. The voice was but little altered and deglutition was fairly good. On several occasions, pieces of the tumor had been coughed up since she was three years of age. Microscopic section showed it to be papilloma. *Scheppegrell.*

Two Cases of Foreign Bodies in the Air Passages.

490. WIGG, A. E. (*Aust. Med. Gazette*, April 20, 1898.) The first case was a boy of four years, who was suddenly seized with choking while eating his breakfast. The trachea was opened and a piece of sheep-rib, triangular

in shape and about three-eighths or an inch in its greater length, was removed.

In the second case, a lady of 30 years inspired a tooth while being operated upon under ether. In spite of treatment the patient succumbed from exhaustion. An autopsy showed a large empty empyema of the right side communicating with a small abscess in the middle lower lobe of the right lung, and this again communicating with the bronchus. Near the abscess the decayed bicuspid tooth was found.

Scheppegregell.

Foreign Body in the Air Passage.

491. WIGG, A. E. (*Aust. Med. Gazette*, May 20, 1898.)

To avoid the possibility of a tooth or blood lodging in the air passages during a dental operation, the author suggests placing the patient on his back on a table and allowing the head and neck to hang over it until the face is vertical.

Scheppegregell.

Remarks on Rheumatic and Gouty Affections of the Throat.

492. WILLIAMS, P. W. (*Laryngoscope*, April, 1898.)

In the rheumatic affections of the throat the writer has been unable to observe any characteristic features. In the larynx there seems to be a tendency to affect the crico-arytenoid joint, and though the swelling may not be apparent, the movements of the corresponding vocal cord are impaired and more or less permanent fixation is liable to result. Gouty affections of the throat are more commonly encountered. There may be acute, causing pain, odynphagia and various inflammatory manifestations, or chronic, causing tickling of the lateral walls of the pharynx, a sense of pain of a darting character and shooting up to the ears, irritating cough and some external tendences about the larynx. Small tophi have been observed in the larynx and deposits have been found in the pharynx.

Loeb.

V.—MISCELLANEOUS; THYROID GLAND; ESOPHAGUS, ETC.

Mental Phases of Tuberculosis.

493. ALEXANDER, H. C. B. (*Journ. American Med. Ass'n*, June 11, 1898.) The psychology of phthisis has

long been analyzed by alienists who not only recognize *spes phthisica* as a common phenomena and as an expression of exhaustion removing the checks on emotional mobility, but recognize likewise another symptom which underlies much of the difficulty of treating seemingly sane victims of pulmonary tuberculosis.

This mental symptom which is exceedingly marked, so much so, that it always arouses a suspicion of tuberculosis as a complication of psychosis, at least is suspicious. The general mental state of the phthisical is essentially that of the primary confusional lunatic plus emotional mobility. As Spitzka has remarked, there is usually altering depression, emotional mobility, intensification of the egotism common to invalids, and a suspicious mental state. This underlies the refusal of, and changes in medicinal treatment, if the patient be at home, and the refusal of food if the patient be in a hospital for the insane. The most prominent and decided symptom which appears in the insane, in the larval stage of the disease, is this suspicion. In them, for this reason, physical examination is often difficult, and cough, hectic fever, etc., are often absent.

According to Clouston, it is possible to predict tuberculosis from the mental symptoms. If these cases have been acute at first, the acute stage is of short duration and passes rapidly into an irritable, excitable, sullen and suspicious state. There is a want of fixity of purpose in the mental condition. The intellect at first is not so much obscured as there is great disinclination to exert it. There are occasional unaccountable attacks of excitement, lasting only for a short time, unprovoked paroxysms of irritability and passion in a subdued form. There is a disinclination to enter into any kind of amusement or continuous work. If this be overcome there is no interest manifest in employment. If there be any one single tendency characteristic of these cases it is to be suspicious. In many cases this insanity commences insiduously and shows itself by an alteration of conduct and affections, an increased irritability and waywardness. There are fitful flashes of intellectual brightness.

The author found from the results of autopsy among the

negroes, who are peculiarly prone to tuberculosis of a rapidly fatal type, that while more than one-half of the patients in the insane hospital suffering from tuberculosis, one-third of those who contract the disease make a good stand against it, either entirely recovering or living for a term of years without being injuriously affected by small, though unhealed foci of tuberculosis, or dying from some other cause in the course of a very mild and chronic form of the disease.

Scheppegrell.

Cough Due to Causes Outside the Lungs.

494. BARNHILL, J. F. (*Laryngoscope*, Feb., 1898.)

The following are the principal reflex causes:

1. Impacted cerumen, foreign body or cholesteatoma.
2. Nasal hypertrophies, septal spurs, polypi, foreign bodies and atrophic rhinitis.
3. Adenoids, rhino-pharyngeal polypi and neoplasms.
4. Elongated uvula, granular pharyngitis, hypertrophy and other diseases of the tonsils.
5. Hypertrophied lingual tonsils, varicose veins, a too greatly curved epiglottis.
6. Mucus or pus in the larynx, congestion or thickening of the laryngeal mucous membranes, papilloma or other growths.
7. Pressure or irritation of the vagi.

Loeb.

Exophthalmic Goitre, Treatment by Means of Galvanization.

495. BERTRAN, E. (*American Medico-Surgical Bulletin*, June 10, 1898.) The constant galvanic current has given the good results in the treatment of Basedow's disease. The principal advantages obtained with this electro-therapeutic method were the diminution or disappearance of the exophthalmus, gradual improvement of the general condition, diminution of the disordered cardiac innervation, and finally diminution in volume of the hypertrophied thyroid body.

Scheppegrell.

A New Symptom in Peripheral Facial Paralysis.

496. BORDIER and FRENKEL. (*American Medico-Surgical Bulletin*, Feb. 25, 1898.) When a patient with this type of facial paralysis closes the eyes, the lid on the unaffected side closes energetically, while that on the diseased side but slightly, showing that the globe of the

eye is at the same time raised slightly and somewhat to the outer side. In other words, the patient cannot shut the eye on the diseased side without raising the globe at the same time in an upward and outward direction. This symptom it is claimed is absent in facial paralysis of central origin.

Scheppegrell.

Open-Air Treatment of Pulmonary Tuberculosis as Practiced in German Sanatoria.

497. BREHMER, (*British Med. Journal*, May 21, 1898.) The author, who was the originator of the sanatorium idea, established the following laws:

1. In order to avoid dust, the institutions should be away from public traffic.

2. The air should be dry and aseptic, and yet there should be an abundant rainfall.

The main point of the treatment is that the patient should spend most of his time in the open air, protected from the weather, usually remaining in the prone position.

Scheppegrell.

A New Instrument for Removing Coins and Similar Shaped Foreign Bodies When Lodged in the Oesophagus.

498. BROWN, M. L. (*Boston Med. and Surg. Journal*, June 2, 1898.) The instrument consists of a twisted stem or rod joined to a flattened handle, together about fifteen inches long. One end of the rod is bifurcated three inches, forming a closed loop. This loop is bent upon itself into two parallel loops an inch long and about half an inch apart, the part joining the parallel loops forming the beak of the instrument, which is placed at an angle of 45 degrees to the plane of the posterior parts of the loops and one-quarter of an inch from that plane.

The coin or similar shaped foreign body is caught by the beak, deflected into the parallel loops, and upon withdrawing the instrument the coin is drawn up with it.

Scheppegrell.

An Unusual Oesophageal Anomaly.

499. DAVID, E. L. (*American Practitioner and News*, May 1, 1898.) The patient was a well-developed man of 35, who had been a lunatic for years. There were only two large openings in the diaphragm, the vena cava and

the aortic; these occupied their normal positions, but no where was there an oesophageal opening.

The oesophagus passed through the aortic opening, between the crura in front of the body of the twelfth dorsal vertebra, then forward and to the left and entered the stomach opposite the first lumbar vertebra; the stomach was lower and more to the right than common, extending markedly into the right hypochondrium.

In passing through the opening, the oesophagus was in front of the aorta and had the right and left pneumogastric nerves on either side. They were not separated by the crura of the diaphragm, nor in any manner was there a resemblance of a partition.

Besides, above there existed quite a number of more common anomalies, as the superior thyroid artery rising from the common carotid; the axillary artery dividing into two branches, the deep one taking the place of the brachial artery and becoming the radial, and the superficial branch becoming the ulnar; the obturator artery arising from the deep epigastric. *Scheppegrell.*

Tuberculosis and its Treatment by the Later Methods.

500. DEARDOFF, A. G. (*Jour. Amer. Med. Ass'n*, July 23, 1898.) The use of anti-tubercular serum is advocated in addition to general tonic and hygienic treatment. When pus exists in the system, the anti-streptococcic serum is alternated with the anti-tubercular serum. Twelve clinical cases are reported, with the following results:

Five cases, third stage: one died, one somewhat benefitted, one greatly benefitted, one well, one living six months after being given up to die at any time.

Three cases second stage: one greatly improved, one well over one year, one improving.

Four cases, third stage: four well. *Scheppegrell.*

Opiates in the Treatment of Bronchitis.

501. ENGLISH, W. T. (*Jour. American Med. Ass'n*, June 11, 1898.) Among the results obtained are the reduction of irritation, alteration as to the amount of secretion, and removal of sleeplessness. Opium in the form of Dover's powder is advised, preferable at bed time.

[Opiates are being used less and less each year in the treatment of bronchitis and other affections of the respiratory passages. They should never be used as a routine measure and only when there is some positive indication. Scheppegegrell.] *Scheppegegrell.*

A New Electric Head Lamp for use with the Edison Current.

502. GLEASON, E. B. (*Laryngoscope*, April, 1898.) The light may be used with entire satisfaction during the brightest day, the cavities being fully illuminated. The electric lamp employed is of the candelabrum variety with a long incandescent film no part of which is accurately focused upon the field of operation by the condensing lens of the lamp, obviating the deep shadows. *Loeb.*

Oesophagotomy for Jackstone in the Upper Oesophagus; Death from Exhaustion.

503. KEEN, W. W. (*Therapeutic Gazette*, April 15, 1898.) A child of 13 years had swallowed a jackstone, which was shown by means of a skiagraph to be in the oesophagus opposite the body of the fourth and fifth cervical vertebrae. As efforts through the normal passage proved unavailing, an oesophagotomy was performed, and the jackstone removed. The tissues of the oesophagus around the foreign body had already commenced to slough. The child died apparently from exhaustion. *Scheppegegrell.*

Rhinology, Laryngology and Otology in France.

504. KING, G. (*Laryngoscope*, May, 1898.) In Bordeaux under Professor Moure a large clinic is sustained by the medical faculty. From Jan. 1 to Nov. 25, 1897, the number of consultations was 8,685, of which 5,124 were for the ear and nose and 3,561 for the larynx. 582 operations were performed. For ordinary purposes gas light is employed, but for intra-nasal and intra-laryngeal operations the electric head light is used. *Loeb.*

Beechwood Creosote in the Treatment of Phthisis.

505. LAMPLOUGH, CHAS. (*British Medical Journal*, May, 28, 1898.) As the result of the authors investigation of 100 cases of pulmonary tuberculosis treated with large doses of beechwood creosote, he offers the following conclusions:

1. The best beachwood creosote can be given with benefit, in amounts varying from 120 to 240 minims daily, in cases of pulmonary tuberculosis.

2. The drug is best administered in cod liver oil or in a spirituous solution, and in some cases the "creosote chamber" or oro-nasal inhaler may be ordered in addition, with advantage.

3. The dose should be small at first, but it can be rapidly increased to 40 minims three times daily for an adult. In three cases doses of 30 minims three times a day were well borne by children.

4. Large doses rarely cause any gastric disturbance; on the contrary, the appetite is frequently increased, symptoms of dyspepsia disappear, and cod liver oil is more easily assimilated. The cough, expectoration and night sweats are diminished, and the physical signs improved.

5. Owing to its disinfectant action in the alimentary canal, the drug probably diminished the risk of tuberculous enteritis by self-infection when patients swallow their sputa, but owing to the increase peristalsis which is created by creosote, it is usually contraindicated in cases where the ulceration is already advanced.

6. The drug does not tend to cause hemoptysis, but rather to prevent its occurrence.

7. Creosote does not irritate the normal mucous membrane of the genito-urinary tract.

8. Owing to its extremely small cost, pure creosote can be given to a much larger number of patients than the carbonates of creosote and guaiacol, which respectively cost four times and twelve times as much as the older drug.

Scheppegrell.

Pathology of Tuberculous Glands of the Neck; Their Early and Complete Removal.

506. LAPLACE, ERNEST. (*Journ. American Med. Ass'n*, June 4, 1898.) The complete removal and dissection of tuberculous glands are advocated so as to remove as completely as possible the foci of the disease. The main contraindication to the operation is the presence of tuberculous disease of the lungs. The prognosis in uncomplicated cases is favorable.

Scheppegrell.

Werlhof's Disease (Purpura Hemorrhagica.)

507. LEWIS, C. H. (*Medical Record*, May 28, 1898.) In the first case reported, there was purpuric spots over the surface of the body and free hemorrhage from the mouth, nose, bowels, bladder and uterus, the amount of blood lost, in spite of treatment, being enormous. The patient died from cardiac failure.

The point of interest in the second case is that the hemorrhage involved the nuclei of the third nerve, in addition to the blood passed from the bowels and the urethra. This case recovered.

In the third case, there was a moderate number of purpuric spots over the body, and the tongue and throat presented small mucous extravasations. The right tonsil was enlarged and had black hemorrhagic spots on the anterior surface, with some surface clots. The patient died from exhaustion.

Scheppegrell.

Report of a Case of Foreign Body in the Oesophagus; Retro-pharyngeal Oesophagotomy.

508. MCCOY, C. (*Medical Record*, July 16, 1898.) A whistle was removed from the oesophagus by retropharyngeal oesophagotomy, which was followed by a fistulous abscess, which closed, however, in seven days. When a foreign body has been in the oesophagus for over 12 hours, especially if it is known to have had sharp edges, immediate removal through an external incision is demanded. The prolonged and continued use of oesophageal instruments is condemned. Where practical, the wound in the oesophagus should be closed by sutures at the time of the operation.

Scheppegrell.

A Contribution to the Pathology of Purpura Hemorrhagica.

509. MASON, J. (*Aust. Med. Gazette*, May 20, 1898.) The patient, previously healthy, suddenly began spitting blood. When seen 30 hours after the onset, the right side of his tongue was one large blood-clot, and blood oozed from the whole surface of the soft palate as if from a sponge. There were several submucous patches. The body was covered with petechial spots in such profusion that the normal skin could not be touched between them. The urine had the appearance of blood, and large quantities were evacuated from the bowels.

The patient was not a bleeder and had never been ill before. The only history given was that six hours before the bleeding commenced, the patient had been struck on the thumb by the hoof of a sheep, which carried away about one inch of superficial tissue. No organism could be found in the blood, but it was deficient in coagulability. Calcium chloride was administered with good results. The author believed the disease to have been of microbic origin.

Scheppegrell.

Tuberculosis of the Upper Air-Passages.

510. MAYER, EMIL. (*The Medical News*, May 14, 1898.)

Tuberculosis of the nasal passages is rare; it may be primary or secondary. In pharyngeal tuberculosis secondary to disease of the larynx, the chief symptom is pain extending to the ear. The treatment must be heroic. There is no chance for recovery, and the physician must be sufficiently humane to freely administer one of the more powerful anodynes, irrespective of the fear of the patient becoming addicted to drug habits. Morphine in combination with cocaine is recommended.

In tuberculous laryngitis, the treatment may consist either of local applications of lactic acid, iodoform, etc., or the surgical methods of Krause and Heryng. In the earlier stages of tuberculous disease, the most important therapeutic remedy is a complete change of surroundings, the climate being suited to the physical condition of the patient.

Scheppegrell.

Graves' Disease with Bradycardia.

511. PASTEUR. (*British Med. Journal*, May 7, 1898.)

A woman suffering from Graves' disease presented marked atrophy of the thyroid gland with certain symptoms suggesting myxoedema. There was marked proptosis, slowness of speech and sensitiveness to cold; the hands were tremulous and the skin moist; the pulse-rate had fallen to between 40 to 50 per minute. Thyroid extract had aggravated the symptoms.

Scheppegrell.

A Fatal Case of Thyroidectomy.

512. PAUL, F. T. (*Med. and Surg. Reporter*, March 3, 1898.) Two cases of thyroidectomy, the first proving fatal, are reported. Marked symptoms of thyroidism de-

veloped in both cases. The symptoms of thyroidism after operation for goitre are due to excess of handling the gland, thus increasing the amount of secretion which is taken up by the lymphatics. To avoid this danger, ligation of the isthmus early in the operation should be done.

Scheppegrell.

Some Clinical Facts.

513. RIPAULT. (*Annales des Maladies de l'Oreille du Lar, du Nez et du Phar.*, No. 5, May, 1898.) The author puts on record a number of interesting observations which he made last year in his clinic:

First, spontaneous expulsion of a big foreign body from the maxillary sinus. A silver nail which was used to close an opening of the maxillary sinus after operation, got lost in the sinus, and was removed three weeks later by syringing the sinus.

Second, Lupus papillomatosus of both nasal fossae.

Third, Rhinolith which was removed from the nose of a child of five years. The rhinolith in its centre did not contain any foreign body.

Fourth, a case of voluminous tumor of the soft palate.

Fifth, hereditary specific laryngitis in a young man of twenty-seven, treated with gradual dilatation of the larynx.

Sixth, a case of gumma of the tongue.

Seventh, remarkably quick development of a polypus of Shrapnell's membrane. The polypus developed in one month to the size of the canal.

Eighth, big polypus of the left nasal fossa with cerebral symptoms. The polypus was removed through the nasopharynx with the finger, and was 12 cm. long and weight 30 grammes.

Ninth, spontaneous hematoma of the uvula.

Tenth, a case of recurrent tubercular ulcers of the nasopharynx and pharynx rapidly cured with carbolic acid in glycerine.

Eleventh, a case of paralysis of the soft palate from pulling a tooth, chloride of ethyl (freezing) being used as the anesthetic.

Twelfth, a case of voluminous papilloma of the right anterior faucial pillar.

Thirteenth, grave accident after the use of cocaine. A

ten per cent. solution being used in a patient of 60. Patient was sick for three days but recovered. *Holinger.*

Two Cases of Half-Pennies Impacted in the Oesophagus for Five and Six Months Respectively, Revealed by X Rays and Removed.

514. ROBSON, A. W. M. (*Lancet*, July 16, 1898.) In both cases, by means of Roentgen photographs, the coin was found impacted in the oesophagus at a point opposite the pericardium. Both were removed by the Smith coin catcher. *Loeb.*

Observations Upon the Specific Treatment of Tuberculosis.

515. ROOT, P. S. (*Journ. American Med. Ass'n*, June 25, 1898.) The report of three cases apparently benefitted by oxytuberculin. *Scheppegrell.*

Diagnosis and Treatment of Spasmodic Stricture of the Oesophagus.

516. RUSSEL, J. C. (*British Med. Journ.*, June 4, 1898.) Cases of spasmodic stricture of the oesophagus are rare. Persistent vomiting, unless due to disease of the stomach, and the behavior of food given through a tube, are of valuable assistance. The failure to detect a stricture on the passage of a bougie is not proof of its absence in spasmodic cases, nor is the persistence of the symptoms after the largest bougie has been passed. Treatment consists of gradual dilatation of the stricture by an expanding dilator to a calibre approaching the normal.

[Spasmodic stricture of the oesophagus occurs most frequently in neurotic patients, and constitutional treatment is usually the most successful. The danger of passing the bougie in this as in other cases should not be overlooked. This subject was thoroughly discussed at the meeting of the American Laryngological Ass'n, Washington, D. C., May, 1897, and many important points brought out. *Scheppegrell.*]

Infiltration Anesthesia.

517. SCHLEICH, CARL. (*Medical News*, June 4, 1898.) The following contraindications of the infiltration method are stated:

- 1, Whenever the limits of disease are not reasonably definable.
2. In diffuse cellulitis requiring free incisions.

3. The malignant new growths on account of the danger of forcing the *materies morbida* into the lymph channels. The same danger is to be apprehended in conditions of diffuse tuberculosis.

4. Special attitudes long to be maintained during operation.

The use of cocain is recommended as a rule, and general anesthesia as an exception.

Scheppegrell.

The Ancient and Modern Instruments Used in Diagnosis and Treatment of Diseases of the Oesophagus and Stomach.

518. SPIVAK, T. D. (*Jour. American Med. Ass'n*, June 11, 1898.) An historical study of the subject of the title.

Scheppegrell.

A Case of Multiple Fibro-Adenoma of the Thyroid with Marked Calcareous Deposit.

519. SOMMER, H. O. (*Medical Times*, July, 1898.) An interesting report of the autopsy, which showed calcareous deposits, not only in the thyroid tumor, but also in the heart, the auriculo-ventricular septum as well as the valves being almost completely calcified.

Scheppegrell.

Modern Methods in the Treatment of Tuberculosis.

620. WAUGH, W. F. (*Jour. Amer. Med. Ass'n*, July 23, 1898.) A general review of the methods of treating tuberculosis, including serum therapy.

Scheppegrell.

Climatology in the Treatment of Pulmonary Tuberculosis.

521. WAUGH, W. F. (*Jour. of American Med. Ass'n*, June 18, 1898.) In general that climate is best for the consumptives that permits him to spend the greatest proportion of his time in the open air, and which affords the largest number of hours of sunshine.

Climate alone will not kill the tubercle bacillus, and the importance of this method of treatment has been vastly overestimated with disastrous results, because it has led patients to rely upon climate exclusively, neglecting more important conditions such as personal hygiene, rest during fever, avoidance of fatigue, digestion, local treatment of tuberculous lesions, and specific treatment which has now reached a development too important to be ignored. With these matters properly attended to, a consumptive will have a better opportunity for recovery in Chicago than in any

other climate on the face of the earth where all other treatment is neglected. *Scheppegrell.*

The Operative Treatment of Goitre.

522. WORMSER. (*British Med. Journal*, May 7, 1898.) Thyroidectomy is indicated in cases of (1) malignant tumors of the thyroid gland; (2) acute and chronic strumitis; (3) parenchymatous goitre, diffuse hypertrophy of gland; (4) polycystic goitre; (5) goitre with disseminated foci. It is contraindicated in cases in which no normal thyroid tissue is left.

Strumectomy may be practiced in cases of (1) unilobular cystic goitre; (2) isolated nodules enclosed in normal tissue, if same can be removed rapidly and without much bleeding; (3) large morbid deposits existing in immovable goitres. *Scheppegrell.*

Exophthalmic Goitre in Children.

523. X. (*Pediatrics*, Vol. 4, No. 12.) Exophthalmic goitre in children is rare. The development of the disease when present proceeds more rapidly, the tachycardia is much less marked, the subjective sensation of palpitation is less conspicuous, the thyroid affections is constantly present, while the exophthalmic signs are confined to a relatively small proportion of cases. If all patients with chorea were carefully examined, more cases of exophthalmic goitre would be found than is commonly supposed.

Scheppegrell.

NOTES AND ANNOUNCEMENTS.

Drs. Gelosio Chincini and Gaetano Geronzi have been appointed privat-docents of oto-rhino-laryngologie at Rome.

The Archives Internationales de Laryngologie, etc., hitherto edited by Dr. Helme will be continued by Dr. Saint-Hilaire, of Paris.

At the University of Lyons, Dr. Lannois has been empowered to deliver a course on otology, rhinology, and laryngology. Bordeaux and Paris have already official courses on these three specialties.

The Second Spanish Congress of Oto-rhino-laryngologie will meet at Barcelona in September, 1898. The following programme is proposed:

1. What is there to be expected from electro-therapy in labyrinthine affections?
2. Surgical treatment of the cerebral complications of otic origin.
3. Diagnosis and treatment of incipient laryngeal cancer.
4. Results of surgical treatment in laryngeal tuberculosis.
5. Is there a diathetic pharyngitis?
6. Treatment of frontal sinusitis.

The XIII International Medical Congress will meet at Paris on Thursday, August 2, 1900, with Professor Lannelongue as president. It will last one week. There will be a separate section on otology, rhinology, and laryngology. This will, following the precedent of other congresses, be subdivided into two sections; one devoted to otology; the other to laryngology and rhinology. Each department will have a committee of organization. The section on otology will have a committee composed of Messrs. Gelle, president; Castex, secretary; Boucheron, Duplay, Ladreit de Lacharrière, Lannois, Loewenberg, Lubet-Barbon, Menicic, Miot, Nemier. The committee of the Rhino-Laryngological section will consist of Messrs. Gouguenheim, president; Lermoyez, secretary; Cartaz, Chatellier, Garel, Luc, Martin, Mourztet, Bourronillow, E. J. Moure, Poyez Ruault.

All communications on scientific subjects should be addressed:

For the Otological Section, M. C. Dr. Castex, 30, avenue de Messire, à Paris.

For the Rhono-Laryngological Section, M. C. Dr. Lermoyez, 20 bis, rue de la Boétie, à Paris.

For information in regard to railroad fares, hotels, etc., address M. C. Dr. Chaufford, secrétaire général du congrès, 21, rue Saint-Guillaume, à Paris. German, English or French may be used at the Congress. French is the only language allowed in the report.

BOOK NOTICE.

Electricity in the Diagnosis and Treatment of Diseases of the Nose, Throat and Ear. With 161 illustrations. By W. Scheppepegrell, A. M., M. D. pp. ix, 403; 1898. New York, G. P. Putnam's Sons; Chicago, A. C. McClurg & Company.

This book is a useful addition to the working library of every practitioner who uses electricity, notwithstanding the fact that much of its matter is something of an old story to the specialist in otolaryngeology. Lest the praise here given appear too moderate, we wish to say that every recent article of value, witness 565 references, relating to the employment of electricity in diseases of the nose, throat and ear, is adequately abstracted, and properly placed in the book. In this regard the author has set a good example. We feel, however, that in his desire to do full justice to everyone, Dr. Scheppepegrell has been, in some instances, over generous. He has erred in permitting the reader, who may be inexpert, to have his choice. A trifle more of criticism would increase the value of the hand book to the man who has yet to get his experience. On the other hand, the careful reader will be able to discover, which is really the best, in a method or a saw, and the directions for the use the particular instrument or application are almost without exception explicit. In many individual instances the work gives abundant evidence of having been written by a "practical" man, who has learned the value of exactness when dealing with edged tools. The book can be very heartily commended.

